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THE WORLD'S AIR QUALITY MANAGEMENT STANDARDS

VOLUME I: THE AIR QUALITY MANAGEMENT STANDARDS OF THE WORLD, INCLUDING UNITED STATES FEDERAL STANDARDS

NORTH CAROLINA UNIVERSITY

PREPARED FOR
NATIONAL ENVIRONMENTAL RESEARCH CENTER

OCTOBER 1974

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MISCELLANEOUS SERIES

THE WORLD'S AIR QUALITY MANAGEMENT STANDARDS

VOLUME I: THE AIR QUALITY MANAGEMENT STANDARDS OF THE WORLD, INCLUDING UNITED STATES FEDERAL STANDARDS

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This is as complete as possible an assembly of the numerical air quality management standards of the world, including the United States. The kinds of standards included are those for: air quality, concentration at point of impingement at ground level, deposited particulate matter, emergency procedure concentrations, emissions, fluorides in forage, fuel, measurement method, protection zone, soiling index, stack height and sulfation. It excludes air quality management regulations that do not have numerical limits; and, conversely, numerical limits that do not directly relate to air quality management. In the former category are open burning and fugitive dust regulations, that, almost without exception, do not include numerical limits. In the latter category are numerical design standards for fuel burning equipment which relate only indirectly to air quality management.

The standards are presented in tabular form, supported, where necessary, with figures.

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VOLUME I: THE AIR QUALITY MANAGEMENT STANDARDS OF THE WORLD, INCLUDING UNITED STATES FEDERAL STANDARDS

by

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October 1974

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Since it does not present research information oriented to the programs of ORD, this document has been assigned to the MISCELLANEOUS REPORTS series. Prepared in conjunction with the Office of Research and Development's activities as an International Reference Center for Air Pollution Control of the WHO, it provides an assembly of data on air quality management standards which were compiled in part for the information and support of other EPA offices.

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This is as complete as possible an assembly of the numerical air quality management standards of the world, including the United States. The kinds of standards included are those for: air quality, concentration at point of impingement at ground level, deposited particulate matter, emergency procedure concentrations, emissions, fluorides in forage, fuel, measurement method, protection zone, soiling index, stack height and sulfation. It excludes air quality management regulations that do not have numerical limits; and, conversely, numerical limits that do not directly relate to air quality management. In the former category are open burning and fugitive dust regulations, that, almost without exception, do not include numerical limits. In the latter category are numerical design standards for fuel burning equipment which relate only indirectly to air quality management.

The standards are presented in tabular form, supported, where necessary, with figures.

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This report is in two volumes: Volume I, The Air Quality Management Standards of the World, Including United States Federal Standards; and Volume II, The Air Quality Management Standards of the United States.

NOTICE

Errors, corrections, or other comments concerning this document should be addressed to:

U.S. Environmental Protection Agency
Special Studies Staff
Research Triangle Park, N. C. 27711

CONTENTS OF VOLUME I

Page

Table of Contents, Volume II v
List of Tables vi
List of Figures xi
Acknowledgements xiii

Sections

I Conclusions 1
II Recommendations 2
III Introduction 3
IV The Air Quality Management Standards of the World, other than those of the Subsidiary Jurisdictions of the United States 5
  A. The Air Quality Standards of the World 6
  B. The Emission Standards of the World 6
V Analysis 8
VI Appendices 10a
  A. Tables - Air Quality Standards of the World (Tables 1 through 7) 11
  B. Tables and Figures - Emission Standards of the World (Tables 8 through 16 and Figures 10-1 through 15-4) 108
  C. List of Information Sources 376

CONTENTS OF VOLUME II

iii

List of Tables iv

List of Figures xiv

Acknowledgements xvii

Sections

I Conclusions 1

II Recommendations 2

III Introduction 3

IV The Air Quality Management Standards of the United States 5

A. The Air Quality Standards of the United States 5

B. The Emission Standards of the United States 6

V Analysis 8

VI Appendices

A. Tables - Air Quality Standards of the United States (Tables 17 through 24) 11

B. Tables and Figures - Emission Standards of the United States (Tables 25 through 30 and Figures 25-1 through 27-4) 81

LIST OF TABLES IN VOLUME I

No.		
1	List of Countries from which information was obtained.	11
2	Air Quality Standards, other than those from Subsidiary Jurisdictions of the United States	13
3	Point of Impingement at Ground Level Standards, other than those from Subsidiary Jurisidictions of the United States.	85
4	Fluorides in Forage Standards, other than those from Subsidiary Jurisdictions of the Unted States.	98
5	Deposited Particulate Matter Standards, other than those from Subsidiary Jurisdictions of the United States.	99
6	Soiling Index and Sulfation Standards, other than those from Subsididary Jurisdictions of the United States.	103
7	Emergency Procedure Concentrations Levels, other than those from Subsidiary Jurisdictions of the United States	104
8	Emission Standards for Specific Pollutants in Effluent Air or Gas from Stationary Sources, other than those from Subsidiary Jurisdictions of the United States.	108
8-1	Permissible Emission, Czechoslovakia	144
8-2	Emission Standards for Nitrogen Oxides from Stationary Sources, Japan	145
8-3	Emission Standards for Sulfur Oxides from Stationary Sources, Japan	146
8-4	Emission Standards for Sulfur Oxides from Stationary Sources, Newest Revision April 1974, Japan	147
8-5	Emission Standards for Stationary Sources, East Germany.	148

8-6	Area Classifications, East Germany	149
8-7	Classification of Gaseous Pollutants, West Germany	150
9	Fuel Standards, other than those from Subsidiary Jurisdictions of the United States.	153
9-1	Sulfur Content in Fuel, New Brunswick, Canada	163
9-2	Sulfur Content in Fuel, Ontario, Canada	163
9-3	Sulfur Content in Fuel, Montreal, Canada	163
10	Emission Standards for Particulate Matter in Effluent Air or Gas from Stationary Sources, other than those from Subsidiary Jurisdictions of the Untied States	164
10-1	Maximum allowable discharge rates of dust and fumes, Philippines	212
10-2	Maximum allowable discharge for dust, Mexico	213
10-3	Dust Classification, West Germany	214
10-4	Emission Standards for Suspended Particulate Matter, Israel	216
10-5	Maximum allowable discharge rate of discharge of grit and dust from furnaces, other than incinerators, Great Britian	217
10-6	Special Districts and their K-values, Japan	218
11	Stack Height Requirements, other than those of Subsidiary Jurisdictions of the United States	219
11-1	Stack Height Requirement Based on Fuel Consumption, Sao Bernardo and Santo André, Brazil	225
11-2	Stack Height Requirement Based on Sulfur Dioxide Emissions, Sao Bernardo and Santo André, Brazil	225
11-3	Stack Height Requirement Based on Emissions and Specific Pollutants for Fuel Burning, Czechoslovakia	226

11-4	Allowable Emissions Based on Stack Height, Pollutant and Air Quality, East Germany	227
11-5	Definitions of Suspended Particulate Matter and Settleable Particulate Matter, East Germany	228
11-6	Stack Height Adjustments, East Germany	230
11-7	Calculations of h_s Based on Heat Input and Exit Gas Velocity, France	231
11-8	K-Values for Stack Height and Emissions, Japan	233
11-9	Calculation of Corrected Height of Discharge, Japan	234
11-10	Chimney Height Adjustment, Sweden	235
11-11	Example of Stack Height Calculation, USSR	236
11-12	Stack Height Requirements for Large Steam Power Plants, USSR	238
11-13	Stack Height Requirements for Plants Emitting Sulfur Dioxide, Belgium	239
11-14	Stack Height Requirements for Sulfur Dioxide Emissions from Sinter Plants, VDI, West Germany	239
11-15	Basic Chimney Heights for Miscellaneous Warm Emissions of Sulfur Dioxide, Great Britain	239
11-16	Basic Chimney Heights for Sulfur Burning Sulfuric Acid Contact Plants, Great Britain	240
11-17	Basic Chimney Heights for Nitric Acid Production Plants, Great Britain	240
11-18	Chimney Heights for Cement Works, Great Britain	241
11-19	Basic Chimney Heights for Copper Works, Great Britain	241
12	Visible Emission Standards for Smoke from Stationary Sources, other than those from Subsidiary Jurisdictions of the United States	242

12-1 Queensland, Australia 251

12-2 Victoria, Australia 251

12-3 India 252

13 Emission Standards for Soot in Effluent Air or Gas from Stationary Sources, other than those from Subsidiary Jurisdictions of the United States 253

14 Protection Zone Standards, other than those from Subsidiary Jurisdictions of the United States 257

14-1 Requirements in Protection Zones in Paris, France 259

14-2 Health Protection Zones for Industrial undertakings and other Sources of Environmental Pollution, USSR 260

14-3 Width of Sanitary Protection Zone Required for Coal-Fired Power Plants Burning over three Metric Tons of Fuel Per Hour, USSR 277

14-4 Area Classifications, East Germany 278

14-5 Temporary List of Protection Distances Between Emitting Industries and Residential Areas, Northrhine-Westphalia, West Germany 279

14-6 Buffer Zone Standards, Israel 280

14-7 Width of Protection Zones and Specification of Industrial Plants According to Classes in Poland 296

15 Mobile Sources, other than those from Subsidiary Jurisdictions of the United States 321

15-1 Emission Limits of the European Economic Community for Type Approval 334

15-2 Emission Limits of the European Economic Community for Production Spot Testing 334

15-3 U. S. Federal Emission Limits 335

15-4 Emission Limits of Japan 336

15-5	Smoke Standards for Diesel Vehicles, Switzerland	336
16	Recommended Measurement Methods, other than those from Subsidiary Jurisdictions of the United States	337
16-1	Requirements for Sampling Location and Site Density, West Germany	350
16-2	Basis for an Air Quality Inventory, East Germany	351
16-3	Stack Sampling Requirements, Sweden	352

LIST OF FIGURES IN VOLUME I

No.

10-1 Emission Standard for Solid Particulate Matter, West Germany 354

10-2 Total Dust and Fine Dust Emission Standards, General, West Germany 355

10-3 Emission Standard for New Cupolas, West Germany 356

10-4 Emission Standard for Cement Kilns, West Germany 357

10-5 Determination of Factor A in Fly Ash Emission Limit Computation, Italy 358

10-6 Emission Standard for Asphalt Plants, West Germany, Northrhine-Westphalia 359

10-7 Emission Standard for Fibre and Particle Board Production, West Germany 360

11-1 Nomogram for Emission Calculations of Gaseous Pollutants and Suspended Particulates Based on Stack Height, Air Quality Load and Factor S, East Germany 361

11-2 Nomogram for Emission Calculations of Settleable Particulate Matter Based on Stack Height, Particulate Matter Fraction and Air Quality Load, East Germany 362

11-3 Stack Height Requirement Based on Factor A and Heat Input, Italy 363

11-4 Nomogram for Stack Height Calculation, West Germany 364

11-5 Heights of Single Chimneys for Cement Works, Great Britain 365

11-6 Heights Requirement for Cement Works (Multiple Chimneys), Great Britain 366

11-7 Determination of H_{ref} at Conventional Heavy Oil Fired Plants, Sweden 367

11-8 Determination of H_{ref}, Sweden 368

14-1 Calculation of Sanitary Protection Zone Measured from an Operating Petroleum Refinery, USSR 370

15-1 Test Cycle, European Economic Community 371
15-2 Test Cycle, U.S. Federal 371
15-3 Test Cycle, 10-Mode, Japan 372
15-4 Test Cycle, 11-Mode, Japan 372
16-1 Cyclone Sonde BCURA, Great Britain 373
16-2 Stack Sampling Requirements, Sweden 374
16-3 Sampling Line, Sweden 375

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The work of this project was directed by a steering committee consisting of:

Rudolph P. V. Boksleitner, (EPA) Project Officer
Peter Halpin (EPA)
Donald Walters (EPA)
Werner Martin (UNC-CH)
Arthur C. Stern (UNC-CH)

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Mrs. Ernestine McIver
Mrs. Lou Sawyer
Ms. Deborah Ginder

Dr. Yuji Horie of the University of North Carolina at Chapel Hill (UNC-CH) assisted in the preparation of some of the tables in Volume II involving United States Particulate Matter Emission Standards.

ERRATA FOR EPA-650/9-75-001a

The World's Air Quality Management Standards, Volume I

1. p. 14. Acetophenone, East Germany, Short Term, ppm

   reads: 0.0006

   should read: 0.002

2. p. 15. Acrolein, USSR, Long Term, ppm

   reads: 0.12

   should read: 0.012

3. p. 16. AMYL ALCOHOL, West Germany (VDI 2306), Short Term, mg/m^3

   underline 60.0

   AMYL ALCOHOL, West Germany (VDI 2306), Short Term, ppm

   underline 15.0

   Aniline, Czechoslovakia, Short Term, mg/m^3

   underline 0.05

4. p. 17. Long Term, mg/m^3

   underline all values in this column

   underline three consecutive values, 0.03; 0.01, and 0.005

5. p. 18. Benzene, Poland, Long Term, ppm

   insert 0.09

   Benzene, Romania, Long Term, ppm

   insert 0.03

   Benzene, Israel, Short Term, mg/m^3

   reads: 1.6

   should read: 4.8

6. p. 19. Benzine, Israel, Long Term, ppm

   underline 0.8

   Benzine, Israel, Short Term, mg/m^3

   10.0 should not be underlined

Benzine, Israel, Short Term, ppm

underline 2.4

7 p 21 Butyric Acid, Yugoslavia, Long Term, ppm

reads: 0.002

should read: 0.003

Butyric Acid, Yugoslavia, Short Term, ppm

reads 0.003

should read: 0.004

8 p 22. Carbon Disulfide, East Germany, Short Term, ppm

reads: 0.001

should read: 0.01

9 p 23 Carbon Monoxide, Bulgaria, Short Term, ppm

reads. 2.6

should read: 2.7

10 p 24 Carbon Monoxide, Hungary, Long Term, ppm

reads. 1.7

should read: 1.8

Carbon Monoxide, Hungary, Short Term, ppm

reads. 5.2

should read: 5.4

Carbon Monoxide, Hungary, Short Term, ppm

reads. 2.6

should read: 2.7

Carbon Monoxide, Romania, Long Term, ppm

reads: 1.7

should read: 1.8

Carbon Monoxide, Romania, Short Term, ppm

reads: 5.2

should read: 5.4

Carbon Monoxide, Yugoslavia, Short Term, ppm

reads: 2.6
should read: 2.7

11. p. 26. Chloroaniline (-m), USSR, Long Term, ppm

reads: 0.002
should read: 0.003

12. p. 30. 2-3-Dichloro-1-4-, East Germany, Long Term, mg/m^3

Naphthaquinone
underline 0.02

2-3-Dichloro-1-4-, East Germany, Short Term, mg/m^3

Naphthaquinone
underline 0.05

13. p. 31. DIETHYLAMINE, Bulgaria, Long Term, ppm

reads: 0.02
should read: 0.016

DIETHYLAMINE, Bulgaria, Short Term, ppm

reads: 0.02
should read: 0.016

Diethylamine, East Germany, Long Term, ppm

reads: 0.007
should read: 0.008

Diethylamine, Romania, Long Term, ppm

reads: 0.03
should read: 0.016

Diethylamine, Romania, Short Term, ppm

reads: 0.03
should read: 0.016

Diethylamine, West Germany (VDI 2306), Short Term, ppm

reads: 0.09

should read: 0.02

Diketene, East Germany, Long Term, ppm

reads: 0.007

should read: 0.001

DIMETHYLANILINE, Bulgaria, Short Term, mg/m^3

underline 0.0055

14. p. 32. Dimethyl, disulfide, East Germany, Long Term, ppm

reads: 0.78

should read: 0.05

15. p. 34. ETHANOL, Bulgaria, Long Term, ppm

reads: 2.4

should read: 2.5

16. p. 35. Ethylene Oxide, USSR, Long Term, ppm

reads: 0.15

should read: 0.015

17. p. 36. FLUORIDES (as F), Bulgaria, Long Term, mg/m^3 and ppm

reads: 0.02 and 0.01

should read: 0.005 and 0.002

FLUORIDES (as F), Bulgaria, Short Term, mg/m^3 and ppm

reads: 0.005 and 0.002

should read: 0.02 and 0.01

18. p. 37. Fluorides (as HF), Hungary, Short Term

reads: 0.015 30 min

should read: 0.02 0.015 30 min

Fluorides (as HF), West Germany, Long Term, ppm

reads: 0.015

should read: 0.001

Carbon Monoxide, Yugoslavia, Short Term, ppm

reads: 2.6
should read: 2.7

11. p. 26. Chloroaniline (-m), USSR, Long Term, ppm

reads: 0.002
should read: 0.003

12. p. 30. 2-3-Dichloro-1-4-, East Germany, Long Term, mg/m^3

Naphthaquinone
underline 0.02

2-3-Dichloro-1-4-, East Germany, Short Term, mg/m^3

Naphthaquinone
underline 0.05

13. p. 31. DIETHYLAMINE, Bulgaria, Long Term, ppm

reads: 0.02
should read: 0.016

DIETHYLAMINE, Bulgaria, Short Term, ppm

reads: 0.02
should read: 0.016

Diethylamine, East Germany, Long Term, ppm

reads: 0.007
should read: 0.008

Diethylamine, Romania, Long Term, ppm

reads: 0.03
should read: 0.016

Diethylamine, Romania, Short Term, ppm

reads: 0.03
should read: 0.016

Diethylamine, West Germany (VDI 2306), Short Term, ppm

reads: 0.09
should read: 0.02

Diketene, East Germany, Long Term, ppm

reads: 0.007
should read: 0.001

DIMETHYLANILINE, Bulgaria, Short Term, mg/m^3

underline 0.0055

14. p. 32. Dimethyl, disulfide, East Germany, Long Term, ppm

reads. 0.78
should read: 0.05

15. p. 34. ETHANOL, Bulgaria, Long Term, ppm

reads: 2.4
should read: 2.5

16. p. 35. Ethylene Oxide, USSR, Long Term, ppm

reads: 0.15
should read: 0.015

17. p. 36. FLUORIDES (as F), Bulgaria, Long Term, mg/m^3 and ppm

reads: 0.02 and 0.01
should read: 0.005 and 0.002

FLUORIDES (as F), Bulgaria, Short Term, mg/m^3 and ppm

reads: 0.005 and 0.002
should read: 0.02 and 0.01

18. p. 37. Fluorides (as HF), Hungary, Short Term

reads: 0.015 30 min
should read: 0.02 0.015 30 min

Fluorides (as HF), West Germany, Long Term, ppm

reads: 0.015
should read: 0.001

19. p. 39. Formaldehyde, Hungary, Short Term, ppm

reads: 0.005

should read: 0.05

Formaldehyde, Poland, Long Term, mg/m^3 and ppm

reads: 0.01 and 0.007

should read: 0.02 and 0.014

Formaldehyde, Poland, Short Term, mg/m^3 and ppm

reads: 0.02 and 0.014

should read: 0.05 and 0.033

20. p. 41. Hydrochloric Acid, Czechoslovakia, Long Term and Short Term (as H+)

delete the two Long Term values; these same two values should be entered in the comparable columns under Short Term (mg/m^3 and Averaging time)

21. p. 48. MALEIC ANHYDRIDE, Bulgaria, Long Term, ppm

reads: 0.01

should read: 0.012

Maleic Anhydride, Yugoslavia, Long Term, ppm

reads: 0.01

should read 0.012

22. p. 50. Methanol, Hungary, Short Term, ppm

reads: 30.0

should read: 27.0

Methanol, Israel, Long Term, mg/m^3

reads: 1.3

should read: 1.5

Methanol, Israel, Short Term, mg/m^3

reads: 4.0

should read: 4.5

23. p. 51. METHYL ACRYLATE, Bulgaria, Short Term, ppm

0.003 should not be underlined

Methyl Acrylate, USSR, Long Term, mg/m^3

reads:	0.001
should read:	0.01

24. p. 54. Short Term, ppm

last three values in this column should be 0.16 instead of 0.15

Nitric Acid, USSR, Long Term, ppm
(as HNO_3)

reads:	0.15
should read:	0.16

25. p. 60. Oxidants (as O_3), Short Term, mg/m^3 and ppm

reads:	0.01 and 0.005
should read:	0.1 and 0.05

26. p. 61. Phenol, Czechoslovakia

0.026 and 0.079 should not be underlined

Phenol, Hungary, Long Term, ppm

reads:	0.026
should read:	0.0026

Phenol, Hungary, Short Term, mg/m^3

0.01 should be underlined

Phenol, Hungary, Short Term, ppm

reads:	0.026
should read:	0.0026

Phenol, Poland, Short Term, ppm

reads:	0.052
should read:	0.0052

Phenol, Poland, Short Term, ppm

reads:	0.026
should read:	0.0026

Phenol, USSR, Short Term, mg/m^3 and ppm

reads: 0.001 and 0.0025
should read: 0.01 and 0.0026

27. p. 62. PHTHALIC ANHYDRIDE, Bulgaria, Long Term, mg/m^3 and ppm

reads: 0.2 and 0.03
should read: 0.1 and 0.015

PHTHALIC ANHYDRIDE, Bulgaria, Short Term, mg/m^3 and ppm

reads: 0.1 and 0.015
should read: 0.2 and 0.03

28. p. 64. Soot, Israel, Short Term, mg/m^3

0.3 should be underlined

29. p. 65. Styrene, West Germany (VDI 2306), Long Term, ppm and Short Term, ppm

underline 4.6 and 15.16

Sulfur Dioxide, Canada, Long Term, ppm

reads: 0.11
should read: 0.01

Sulfur Dioxide, Canada, Short Term, mg/m^3

underline 0.9

Sulfur Dioxide, Canada, Long Term, ppm

underline 0.06

Sulfur Dioxide, Canada, Short Term, ppm

underline 0.17

30. p. 67. Sulfur Dioxide, Israel, Short Term, mg/m^3

reads: 0.78
should read: 0.75

31. p. 74. Suspended Particulate Matter, United States, Long Term, Averaging time

reads: 1
should read: 1 yr

32. p. 75. TETRAHYDROFURAN, East Germany, Long Term, ppm

reads: -
should read: 0.07

TETRAHYDROFURAN, East Germany, Short Term, ppm

reads: -
should read: 0.21

Toluene, Bulgaria, Short Term, ppm

reads: 0.15
should read: 0.16

33. p. 76. Toluene, East Germany, Short Term, ppm

reads: 0.5
should read: 0.16

34. p. 77. TRICHLORETHYLENE, Bulgaria, Long Term, ppm

reads: 0.17
should read: 0.18

TRICHLORETHYLENE, Bulgaria, Short Term, ppm

reads: 0.67
should read: 0.74

35. p. 78. Vinyl Acetate, Israel
4.0 and 12.0 should not be underlined,
1.0 and 3.0 should be underlined

36. p. 79. Xylene, East Germany, Long Term, ppm

reads: 0.046
should read: 0.05

Xylene, Hungary, Long Term, ppm

reads: 0.046
should read: 0.05

Xylene, Hungary, Short Term, ppm

reads: -

should read: 0.05

Xylene, USSR, Long Term, ppm

reads: 0.005

should read: 0.05

Xylene, Yugoslavia, Long Term, ppm

reads: 0.46

should read: 0.05

Xylene, Yugoslavia, Short Term, ppm

reads: 0.46

should read: 0.05

SECTION I

CONCLUSIONS

There is a need for tabulations of air quality management standards but no known effort,other than this project, to meet this need. Several national and international organizations have indicated their intention of developing and maintaining in current status a file of the world's environmental laws, regulations, standards, etc. However, as far as is known to the authors, none of these projects are operational, one reason being the enormity of the task of covering all aspects of the environment and all facets of legislation and regulation. To insure that the task gets done, it would be better to break it down into smaller and more manageable subtasks, such as the development and maintenance in current status of a file of the world's air quality management standards. This report forms a 1974 base which can be kept in current status with much less effort than would be required to redo the task from scratch if it is allowed to become obsolete.

SECTION II

RECOMMENDATIONS

It is recommended that the tables in this report be stored in a computer and that a computer program be developed to allow the file to be kept current by the addition of new standards and the up-dating and correction of those in the file. The program should allow the computer to respond to interrogation concerning individual file entries and classes of file entries, as well as to generate up-dated tables similar to those in this report and an up-dated version of this entire report. Thereafter the file and the program should be maintained on current status and its availability publicized among potential users.

Failing such computerization, it is recommended that this report be kept up to date by manual methods.

SECTION III

INTRODUCTION

This report is as complete as possible an assembly of the numerical air quality management standards of the world, including the United States. The kinds of standards included are those for: air quality, concentration at point of impingement at ground level, deposited particulate matter, emergency procedure concentrations, emissions, fluorides in forage, fuel, measurement method, protection zone, soiling index, stack height and sulfation. It excludes air quality management regulations that do not have numerical limits; and, conversely, numerical limits that do not directly relate to air quality management. In the former category are open burning and fugitive dust regulations that, almost without exception, do not include numerical limits. In the latter category are numerical design standards for fuel burning equipment which relate only indirectly to air quality management.

The standards are presented in tabular form, supported, where necessary, with figures.

This report is in two volumes: Volume I, The Air Quality Management Standards of the World, Including United States Federal Standards; and Volume II, The Air Quality Management Standards of the United States.

Although the table and figure entries include no information on methods of sampling and analysis, the promulgating documents frequently cover these matters in considerable detail. The value of an air quality management standard is closely related to its method of sampling and analysis, and, in many cases would have been different had a different method of sampling and analysis been specified in the promulgating document.

In the tables, indented entries are subcategories of the last preceding non-indented entry. In many cases, entries have been abbreviated to make them fit on one line. Such abbreviation forces the exclusion from the entry of qualifying phrases, sentances and paragraphs which appear in the promulgating document. For this reason, the user of an entry should verify that entry with the promulgating document, if decisions of importance depend upon the accuracy of the value and the applicability of the standard. Most common among the materials excluded from entries are: statements of standard temperature, pressure and dilution to which gas quantities are to be reduced and of the methods of sampling and analysis. Although in some cases a footnote has been added with respect to reduction of gases to a standard temperature, pressure or dilution or use of a standard method of sampling and analysis, the absence of such a footnote does not imply that no such reduction or method is required. The absence of such a footnote usually means that such reduction or method does not appear as an explicit part of the statement of the standard, even though it may appear elsewhere in the promulgating document.

SECTION IV

The Air Quality Management Standards of the World, Other than those of the Subsidiary Jurisdictions of the United States

This volume of the report (Tables 1 through 16) covers the air quality management standards of jurisdictions other than those in the United States. The jurisdictions from which information has been received are listed in Table 1. Where a country is absent from Table 1, it is because we tried to obtain information on its air quality management standards but were unsuccessful. The depth of our information varies considerably among the jurisdictions listed in Table 1. For some jurisdictions we have on file copies of pertinant laws and regulations: in other cases abstracts of these laws and regulations; in still other cases, only excepted data on the standards contained in them, and finally, for some jurisdictions we have word that no air quality management standards exist. Our experience with standards from states, counties and cities of the United States has taught us that organizations at higher jurisdictional levels do not have adequate compilations of the standards of lower jurisdictional levels. Since, outside the United States, we have relied upon organizations at higher jurisdictional levels for our data, it is highly probably that we have missed standards promulgated by many of the lesser jurisdictions of the world.

In general our requests for information have been directed to the national organization in each country responsible for air pollution matters, noting our interest in standards at the national, provincial and municipal level. This has been supplemented by similar requests to knowledgeable individuals and organizations in many countries.

The tables in this part of the report were compiled during the summer of 1974 and incorporated the latest material available at the time of compilation. Much of this material was received during 1973, so that the possibility exists that some of the standards listed may have changed between the time of their receiptand their compilation. A special case in point are the 1974 standards of the Federal Republic of Germany which were not formally promulgated until after the compilation of these tables. Those standards for this country listed as Provisional are now official and those not listed as Provisional have now been superceded by those listed as Provisional. Word of these changes were received too late to revise the tables involved.

A. The Air Quality Standards of the World

The air quality standards of the countries of the world other than the United States are presented in six tables (Tables 2 through 7). The principal table (Table 2) covers the limits on specific pollutants in the ambient air. Another table (Table 3) is a table of quasi-emission standards i.e. the limits on specific pollutants in the ambient air at ground level required by national or provincial regulation to be used in diffusion computations to determine limits of emission from specific sources. In this report, standards of this type are called Point of Impingement at Ground Level Standards. Standards for Fluorides which are based upon the fluoride content of vegetation, especially forage, are in Table 4. Table 5 covers standards for particulate matter deposited by sedimentation, rainout or washout as fallout, dustfall or sootfall onto or into exposed receptables. Table 6 covers the standards for the reflectance or transmittance of light by filters through which ambient air has been drawn for a prescribed period of time i.e. soiling index;and for the rate of conversion of lead oxide to lead sulfate by exposure of candles or plates covered with a paste of the material to the ambient air for a prescribed period of time i.e. sulfation. The alert, warning and emergency levels promulgated by jurisdictions outside the United States are in Table 7.

B. The Emission Standards of the World

The emission standards of the countries of the world other than the United States are presented in nine principal tables and several subsidiary tables and figures. One principal table (Table 8) covers limits on the emission of specific substances other than total particulate matter. A closely related table (Table 9) covers standards for some of these same specific substances in fuels. The other principal table (Table 10) covers limits on the emission of total particulate matter. The remaining tables of standards from jurisdictions outside the United States are those for stack height (Table 11); Visible emissions (Table 12); Soot emission (Table 13); Protection zones (Table 14); Mobile Sources (Table 15); and Measurement methods (Table 16).

The subsidiary tables and figures, e.g. Table 8-1, are not intended to be independent. They are extensions of the main tables, e.g. Table 8, are accessed through the footnotes to the main tables.

It should be noted that Table 3, listed under the Air Quality Standards of the World, is a quasi-emission standard in that it sets forth limits on specific pollutants in the ambient air at ground level required by national or provincial regulation to be used in diffusion computations to determine the limits of emission from specific sources. In this report, standards of this type are called Point of Impingement at Ground Level Standards.

SECTION V

ANALYSIS

LIST OF COUNTRIES FROM WHICH INFORMATION WAS OBTAINED

Table 1 shows that information was obtained from 85 foreign countries and Guam; and, within those countries from 27 of their states, provinces and cities. Of these, 44 countries and 2 provinces reported that they had no air quality management standards. Thus the tables in this volume contain the air quality management standard of 43 countries (since they also include the Federal standards of the United States, which also appear again in Volume II), and of 25 states, provinces and cities. The standards of the states, counties and cities of the United States appear in Volume II.

AIR QUALITY STANDARDS (TABLES 2 through 7)

Table 2 lists ambient air quality standards for 142 substances. Their frequency of listing varies from 25 substances listed by only one county, to two substances, suspended particulate matter and sulfur dioxide listed respectively by 20 and 25 countries. Except for these substances, the listings for other substances are predominantly from Bulgaria, Czechoslovakia, East Germany, Hungary, Israel, Poland, Romania, USSR, West Germany and Yugoslavia. The equivalent United States table in Volume II is Table 17.

Only 5 foreign countries explicitly employ Point of Impingement at Ground Level Standards (Table 3). They are Canada, France, Italy, Philippines and Yugoslavia. A number of other countries with ambient air quality standards implicitly employ them in stack height and emission limitation computation. The equivalent table for the United States is Table 18 in Volume II.

Fluoride in Forage standards (Table 4) are found, among foreign countries, only in Canada. Fluoride in Forage standards for the United States are in Table 19 of Volume II.

Nine foreign countries, Argentina, Canada, Colombia, Finland, Hungary, Poland, Romania, Spain and West Germany, employ Deposited Particulate Matter Standards (Table 5); whereas only Canada and Israel use Soiling Index and Sulfation Standards (Table 6). Standards of these types for the United States are listed in Tables 20 and 21, respectively of Volume II.

Five countries, Argentina, Canada, Israel, Japan and West Germany, have promulgated Emergency Procedure Concentration Levels (Table 7).

These involve Carbon Monoxide, Nitrogen Oxides, Oxidants, Sulfur Dioxide and Suspended Particulate Matter; and three emergency concentration levels: alert, alarm and emergency. The equivalent Table for the United States in Volume II is Table 27.

There are no tables in this Volume equivalent to Table 23 (Odor Standards of the United States) and Table 24 (Visibility Standards of the United States). Numerical standards of these two kinds were not found among the air quality management standards of foreign countries.

EMISSION STANDARDS (TABLES 8 through 16)

Table 8 lists emission standards for 42 substances, used by 17 countries. Of these countries, four, Czechoslovakia, East Germany, West Germany and Yugoslavia, are among those previously noted as being predominantly represented among the countries promulgating air quality standards. The majority of the emission standards in this table are from countries that promulgate few or no air quality standards-Australia, Canada, Great Britain, Ireland, New Zealand and Singapore. The other foreign countries represented in the table are Brazil, Italy, Japan, Spain, Sweden and Switzerland. The frequency of listing of substances varies from 18 substances listed by only one country to one substance, sulfur oxides (including SO_2), whose emission are regulated by emission standard in 12 countries.

Table 9 lists standards for sulfur, lead and volatile matter content of liquid and solid fuels in 13 foreign countries, of which 10 are in Western Europe; the others being Canada, Israel and Japan. Table 25 in Volume II covers United States standards of the same types as are included here in Tables 8 and 9.

Emission Standards for Particulate Matter (Table 10) are mainly from Australia, Canada, France, Great Britain, Japan, Sweden and West Germany. In addition to combustion of fuels and refuse, the principal sources for which there are standards are asphalt, carbon black, cement, coal and pulp manufacture, and a variety of ferrous and non-ferrous metallurgical operations. The equivalent United States (Volume II) table is Table 26.

Stack height standards (Table 11) are listed for 15 countries. For seven of these, Czechoslovakia, East Germany, France, Italy, Japan, Sweden and USSR, computational procedures are given. United States stack height standards are in Table 27 of Volume II.

Table 12 gives Visible Emission Standards for 18 foreign countries and Guam, all based upon emission opacity expressed in Ringelmann number. The equivalent Volume I table for United States Visible Emission Standards is Table 28. Table 13 is quite similar to Table 12 in that it lists Emission Standards for Soot, based mainly upon

Bacharach Shade Number. This type of standard is not used in the United States as an air quality management standard but is to be found in the 9 foreign countries listed. Its application is primarily the limitation of smoke from oil burners.

Nine countries have promulgated Protection Zone Standards (Table 14), some of which are quite extensive. Table 14-2 for USSR runs for 18 pages; that for Israel (Table 14-6) for 16 pages; and that for Poland (Table 14-7) for 25 pages. Although air quality management is not the only determinant for the establishment of the width of a sanitary protection zone, it is one of the most important determinants along with noise, glare, vibration, fire hazard and explosion hazard.

Since no United States jurisdictions have promulgated Soot or Sanitary Protection Zone Standards as air quality management standards, there are no tables in Volume II equivalent to Tables 13 and 14.

The exhaust gases for which Emissions Standards for Mobile Sources (Table 15) have been promulgated are Carbon Monoxide, Hydrocarbons and Nitrogen Oxides. Other than the United States, the countries which have adopted such standards are Australia, Canada, Japan, Spain, and Sweden. The European Economic Community and the Economic Commission for Europe have also done so. A more diverse group of countries, 13 in number, have adopted vehicular smoke emission standards. The equivalent tables in Volume II are Tables 28 and 29.

The final table in Volume I is that for Recommended Measurement Methods (Table 16). Methods from 14 countries, for 16 substances, are listed. The equivalent Volume II Table is Table 30.

SECTION VI

APPENDICES

A. Tables - Air Quality Management Standards of the World
(Tables 1 through 7)

B. Tables and Figures - Emission Standards of the World
(Tables 8 through 16 and Figures 10-1 through 15-4)

C. List of Information Sources

SECTION VI

APPENDIX A: Tables - Air Quality Management Standards of the World (Tables 1 through 7)

TABLE 1

LIST OF COUNTRIES FROM WHICH INFORMATION WAS OBTAINED

- Afghanistan*
- Argentina
  - Buenos Aires
- Australia
  - New South Wales
  - Queensland
  - South Australia
  - Victoria
  - Western Australia
- Austria
- Bangla Desh*
- Belgium
- Bolivia*
- Brazil
  - Guanabara
  - Sao Paulo
    - Santo Andre
    - Sao Bernardo
    - Do Campo
- Bulgaria
- Burma*
- Canada
  - Alberta
  - British Columbia
  - Manitoba
  - New Brunswick
  - New Foundland
  - Ontario
  - Prince Edwards Is.*
  - Quebec*
    - Montreal
  - Saskatchewan
- Chile*
- Colombia
- Comoro Islands*
- Costa Rica*
- Czechoslovakia
- Dahomey*
- Democratic Rep. of Germany
- Denmark
- Ecuador*
- El Salvador*
- Ethiopia*
- Federal Rep. of Germany
  - Northrhine Westphalia
  - Hessen
- Fiji*
- Finland
- France
- Gambia*
- Ghana*
- Great Britain
- Greece
- Guam
- Honduras*
- Hong Kong
- Hungary
- India
- Indonesia*
- Iran*
- Iraq
- Ireland
- Israel
- Italy
- Ivory Coast*
- Japan
  - Tokyo
- Kenya*
- Korea*
- Laos*
- Lebanon*
- Liberia*
- Libya*
- Luxembourg*
- Madagascar*
- Malawi*
- Malaysia*
- Malta
- Mauritius*
- Mexico
- Morocco*
- Netherlands
- Nepal*

Table 1 (Continued)

LIST OF COUNTRIES FROM WHICH INFORMATION WAS OBTAINED

- New Guinea*
- New Zealand
- Nigeria*
- Norway
- Pakistan*
- Panama*
- Peru*
- Phillippines
- Poland
- Portugal*
- Rumania
- Singapore
- South Africa
- Spain
  - Madrid
- Sweden
- Switzerland
- Thailand*
- Tanzania*
- Togo*
- Tunisia
- Turkey
- Uganda*
- USSR
- Venezuela*
- Yugoslavia
  - Zagreb
  - Sarajevo
  - Serbia
- Zair*
- Zambia*

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* No Air Quality Management Standards

Table 2. AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City of Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
ACETALDEHYDE	Bulgaria		-	-	-	0.01	0.005	20 min	
Acetaldehyde	East Germany		0.01	0.005	24 hr	0.03	0.016	30 min	3,4
Acetaldehyde	USSR		0.01	0.005	24 hr	0.01	0.005	30 min	6
Acetaldehyde	West Germany (VDI 2306)		4.0	2.0	30 min	12.0	6.0	30 min	2,7,9
Acetaldehyde	Yugoslavia		-	-	-	0.01	0.005	30 min	
ACETIC ACID	Bulgaria		-	-	-	0.2	0.08	20 min	
Acetic Acid	East Germany		0.06	0.024	24 hr	0.2	0.08	30 min	3,4
Acetic Acid	USSR		0.06	0.024	24 hr	0.2	0.08	30 min	6
Acetic Acid	West Germany (VDI 2306)		5.0	2.0	30 min	15.0	6.0	30 min	2,7,9
ACETIC ANHYDRIDE	Bulgaria		-	-	-	0.1	0.025	20 min	
Acetic Anhydride	East Germany		0.03	0.0075	24 hr	0.1	0.025	30 min	3,4
Acetic Anhydride	USSR		0.03	0.0075	24 hr	0.1	0.025	30 min	6
ACETONE	Bulgaria		0.35	0.15	24 hr	0.35	0.15	20 min	
Acetone	East Germany		0.35	0.15	24 hr	1.0	0.42	30 min	3,4
Acetone	Hungary		12.0	5.0	24 hr	180.0	75.0	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Acetone	Hungary		0.35	0.15	24 hr	0.35	0.15	30 min	53
Acetone	Israel		7.2	3.0	24 hr	24.0	10.0	30 min	10
Acetone	Romania		2.0	0.83	24 hr	5.0	2.1	30 min	
Acetone	USSR		0.35	0.15	24 hr	0.35	0.15	30 min	6
Acetone	West Germany (VDI 2306)		120.0	50.0	30 min	360.0	150.0	30 min	2,7,9
Acetone	Yugoslavia		0.35	0.15	24 hr	0.35	0.15	30 min	
ACETOPHENONE	Bulgaria		0.35	0.07	24 hr	0.35	0.07	20 min	
Acetophenone	East Germany		0.003	0.0006	24 hr	0.01	0.0006	30 min	3,4
Acetophenone	USSR		0.003	0.0006	24 hr	0.003	0.0006	30 min	6
Acetophenone	Yugoslavia		0.003	0.0006	24 hr	0.003	0.0006	30 min	
ACROLEIN	Bulgaria		0.1	0.04	24 hr	0.3	0.12	20 min	
Acrolein	Czechoslovakia		0.1	0.04	24 hr	0.3	0.12	30 min	
Acrolein	East Germany		0.01	0.004	24 hr	0.02	0.008	30 min	3,4
Acrolein	Hungary		0.1	0.04	24 hr	0.3	0.12	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Acrolein	Hungary		0.1	0.04	24 hr	0.3	0.12	30 min	53
Acrolein	Israel		0.1	0.04	24 hr	0.25	0.1	30 min	10
Acrolein	Romania		0.1	0.04	24 hr	0.3	0.12	30 min	
Acrolein	USSR		0.03	0.12	24 hr	0.03	0.012	30 min	6
Acrolein	West Germany (VDI 2306)		0.01	0.005	30 min	0.025	0.01	30 min	2,7,9
Acrolein	Yugoslavia		0.1	0.04	24 hr	0.3	0.12	30 min	
AMMONIA	Bulgaria		0.2	0.28	24 hr	0.2	0.28	20 min	
Ammonia	Czechoslovakia		0.1	0.14	24 hr	0.3	0.43	30 min	
Ammonia	East Germany		0.1	0.14	24 hr	0.3	0.43	30 min	3,4
Ammonia	Hungary		0.5	0.71	24 hr	1.5	2.14	30 min	
Ammonia	Hungary		0.2	0.28	24 hr	0.2	0.28	30 min	53
Ammonia	Romania		0.1	0.14	24 hr	0.3	0.43	30 min	
Ammonia	USSR		0.2	0.28	24 hr	0.2	0.28	30 min	6
Ammonia	Yugoslavia		0.2	0.28	24 hr	0.2	0.28	30 min	
AMYL ACETATE	Bulgaria		0.1	0.019	24 hr	0.1	0.019	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Amyl Acetate	East Germany		0.1	0.019	24 hr	0.3	0.057	30 min	3,4
Amyl Acetate	Hungary		30.0	5.7	24 hr	90.0	17.1	30 min	
Amyl Acetate	Hungary		0.1	0.019	24 hr	0.1	0.019	30 min	53
Amyl Acetate	Israel		5.25	1.0	24 hr	15.75	3.0	30 min	10
Amyl Acetate	USSR		0.1	0.019	24 hr	0.1	0.019	30 min	6
Amyl Acetate	West Germany (VDI 2306)		30.0	5.0	30 min	90.0	15.0	30 min	2,7,9
Amyl Acetate	Yugoslavia		0.1	0.019	24 hr	0.1	0.019	30 min	
AMYL ALCOHOL	West Germany (VDI 2306)		20.0	5.0	30 min	60.0	15.0	30 min	2,7,9
AMYLENE	Bulgaria		1.5	0.5	24 hr	1.5	0.5	20 min	
Amylene	East Germany		1.0	0.33	24 hr	1.5	0.5	30 min	3,4
Amylene	USSR		1.5	0.5	24 hr	1.5	0.5	30 min	6
Amylene	Yugoslavia		1.5	0.5	24 hr	1.5	0.5	30 min	
ANILINE	Bulgaria		0.03	0.008	24 hr	0.05	0.013	20 min	
Aniline	Czechoslovakia		0.03	0.008	24 hr	0.05	0.013	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Aniline	East Germany		0.03	0.008	24 hr	0.05	0.013	30 min	3,4
Aniline	Romania		0.02	0.005	24 hr	0.05	0.013	30 min	
Aniline	USSR		0.03	0.008	24 hr	0.05	0.013	30 min	6
Aniline	West Germany (VDI 2306)		0.8	0.2	30 min	2.4	0.6	30 min	2,7,9
Aniline	Yugoslavia		0.03	0.008	24 hr	0.05	0.013	30 min	
ARSENIC (as As)	Bulgaria		0.003		24 hr	-	-	-	12
Arsenic (as As)	Czechoslovakia		0.003		24 hr				12
Arsenic (as As)	East Germany		0.003		24 hr				3,4
Arsenic (as As)	Israel		0.006		24 hr				10,12
Arsenic (as As)	Romania		0.01		24 hr	0.03		30 min	
Arsenic (as As)	Poland		0.003		24 hr	0.01		20 min	15
Arsenic (as As)	Poland		0.002		24 hr	0.005		20 min	29
Arsenic (as As)	USSR		0.003		24 hr				6,12
Arsenic (as AsH_3)	Yugoslavia		0.003		24 hr				
BENZENE	Czechoslovakia		0.8	0.25	24 hr	2.4	0.75	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Benzene	**East Germany**		0.8	0.25	24 hr	1.5	0.46	30 min	3,4
Benzene	**Hungary**		3.0	0.94	24 hr	10.0	3.12	30 min	
Benzene	**Hungary**		0.8	0.25	24 hr	1.5	0.46	30 min	53
Benzene	**Israel**		1.6	0.5	24 hr	1.6	1.5	30 min	10
Benzene	**Poland**		0.3		24 hr	1.0	0.31	20 min	15
Benzene	**Poland**		0.1		24 hr	0.2	0.06	20 min	29
Benzene	**Romania**		0.8	0.25	24 hr	2.4	0.75	30 min	
Benzene	**West Germany (VDI 2306)**		3.0	0.94	30 min	10.0	3.12	30 min	2,7,9
Benzene (high alkyl)	**West Germany (VDI 2306)**		5.0		30 min	15.0		30 min	2,7,9
Benzene	**Yugoslavia**		0.8	0.25	24 hr	1.5	0.46	30 min	
BERYLLIUM	**Canada**	**Ontario**	0.00001	-	24 hr	-	-	-	11
Beryllium	**Israel**		0.00001	-	24 hr	-	-	-	10
Beryllium	**Yugoslavia**		0.00001	-	24 hr	-	-	-	
BENZINE (Low sulfur as C)	**Bulgaria**		1.5	0.38	24 hr	5.0	1.25	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Benzine (from slate as C)	Bulgaria		0.05	0.012	24 hr	0.05	0.012	20 min	
Benzine	East Germany		0.03	0.007	24 hr	0.05	0.012	30 min	3,4
Benzine (crude oil low sulfur)	East Germany		1.5	0.38	24 hr	5.0	1.25	30 min	3,4
Benzine (oil shale)	East Germany		0.03	0.007	24 hr	0.05	0.012	30 min	3,4
Benzine	Hungary		80.0	20.0	24 hr	240.0	60.0	30 min	
Benzine	Hungary		1.5	0.38	24 hr	5.0	1.25	30 min	53
Benzine	Israel		3.3	0.8	24 hr	10.0	2.4	30 min	10,14
Benzine	Poland		0.75	0.19	24 hr	2.5	0.63	20 min	14,29
Benzine	Romania		2.0	0.48	24 hr	6.0	1.45	30 min	
Benzine (crude oil)	USSR		1.5	0.38	24 hr	5.0	1.25	30 min	6,14
Benzine (from shale as C)	USSR		0.05	0.012	24 hr	0.05	0.012	20 min	6
Benzine	West Germany (VDI 2306)		80.0	20.0	30 min	240.0	60.0	30 min	2,7,9 14

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Benzine (as C)	Yugoslavia		1.5	0.38	24 hr	5.0	1.25	30 min	
Benzine (low sulfur)	Yugoslavia		1.5	0.38	24 hr	5.0	1.25	30 min	
BUTANE	Bulgaria		-	-	-	200.0	85.0	20 min	
Butane	East Germany		50.0	21.0	24 hr	200.0	85.0	30 min	3,4
Butane	USSR		-	-	-	200.0	85.0	30 min	6
Butane	Yugoslavia		-	-	-	200.0	85.0	30 min	
BUTANOL	Bulgaria		-	-	-	0.3	0.1	20 min	
Butanol	East Germany		0.1	0.03	24 hr	0.3	0.1	30 min	3,4
Butanol	USSR		-	-	-	0.1	0.03	30 min	6
Butanol	West Germany (VDI 2306)		15.0	5.0	30 min	45.0	15.0	30 min	2,7,9
Butanol	Yugoslavia		-	-	-	0.3	0.1	30 min	
BUTYL ACETATE (-n)	Bulgaria		0.1	0.021	24 hr	0.1	0.021	20 min	
Butyl Acetate (-n)	East Germany		0.1	0.021	24 hr	0.3	0.063	30 min	3,4
Butyl Acetate (-n)	Israel		4.7	1.0	24 hr	14.0	3.0	30 min	10

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Butyl Acetate (-n)	USSR		0.1	0.021	24 hr	0.1	0.021	30 min	6
Butyl Acetate (-n)	West Germany (VDI 2306)		25.0	5.0	30 min	75.0	15.0	30 min	2,7,9
Butyl Acetate (-n)	Yugoslavia		0.1	0.021	24 hr	0.1	0.021	30 min	
BUTYLENE	Bulgaria		3.0	1.2	24 hr	3.0	1.2	20 min	
Butylene	East Germany		2.0	0.8	24 hr	3.0	1.2	30 min	3,4
Butylene	USSR		3.0	1.2	24 hr	3.0	1.2	30 min	6
Butylene	Yugoslavia		3.0	1.2	24 hr	3.0	1.2	30 min	
BUTYRIC ACID	Bulgaria		0.01	0.003	24 hr	0.015	0.004	20 min	
Butyric Acid	USSR		0.01	0.003	24 hr	0.015	0.004	20 min	6
Butyric Acid	Yugoslavia		0.01	0.002	24 hr	0.015	0.003	30 min	
CADMIUM	Yugoslavia		0.003	-	24 hr	0.01	-	30 min	
CALCIUM OXIDE(lime)	Canada	Newfoundland	0.01	-	24 hr	-	-	-	
Calcium Oxide(lime)	Canada	Ontario	0.01	-	24 hr	-	-	-	11
CAPROLACTAM	Bulgaria		0.06	0.013	24 hr	0.06	0.013	20 min	
Caprolactam	East Germany		0.06	0.013	24 hr	0.1	0.022	30 min	3,4

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Caprolactam (fumes)	**USSR**		0.06	0.013	**24 hr**	0.06	0.013	**30 min**	**6**
Caprolactam	**Yugoslavia**		0.06	0.013	**24 hr**	0.06	0.013	**30 min**	
CAPRYLIC ACID	**Bulgaria**		0.005	0.001	**24 hr.**	0.01	0.002	**20 min**	
Caprylic Acid	**East Germany**		0.005	0.001	**24 hr**	0.01	0.002	**30 min**	**3,4**
CAPROIC ACID	**USSR**		0.005	0.001	**24 hr**	0.01	0.002	**30 min**	**6**
Caproic Acid	**Yugoslavia**		0.005	0.001	**24 hr**	0.01	0.002	**30 min**	
CARBON DISULFIDE	**Bulgaria**		0.01	0.0033	**24 hr**	0.03	0.01	**20 min**	
Carbon Disulfide	**Czechoslovakia**		0.01	0.0033	**24 hr**	0.03	0.01	**30 min**	
Carbon Disulfide	**East Germany**		0.003	0.001	**24 hr**	0.03	0.001	**30 min**	**3,4**
Carbon Disulfide	**Israel**		0.15	0.05	**24 hr**	0.45	0.15	**30 min**	**10**
Carbon Disulfide	**Poland**		0.015	0.005	**24 hr**	0.045	0.015	**20 min**	**15**
Carbon Disulfide	**Romania**		0.01	0.0033	**24 hr**	0.03	0.01	**30 min**	
Carbon Disulfide	**USSR**		0.005	0.0016	**24 hr**	0.03	0.01	**30 min**	**6**
Carbon Disulfide	**Yugoslavia**		0.01	0.0033	**24 hr**	0.03	0.01	**30 min**	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
CARBON MONOXIDE	Argentina		11.5	10.0	8 hr	57.7	50.0	1 hr	
Carbon Monoxide	Bulgaria		1.0	0.9	24 hr	3.0	2.6	20 min	
Carbon Monoxide	Canada		6.0	5.0	8 hr	15.0	13.0	1 hr	11,50
Carbon Monoxide	Canada		15.0	13.0	8 hr	35.0	30.0	1 hr	49,50
Carbon Monoxide	Canada	Alberta	6.0	5.4	8 hr	15.0	13.0	1 hr	
Carbon Monoxide	Canada	Manitoba	15.0	13.0	8 hr	35.0	30.0	1 hr	49
Carbon Monoxide	Canada	Manitoba	6.0	5.0	8 hr	15.0	13.0	1 hr	11
Carbon Monoxide	Canada	Newfoundland	9.2	8.0	24 hr	35.0	30.0	1 hr	
Carbon Monoxide	Canada	Newfoundland	15.0	13.0	8 hr	-	-	-	
Carbon Monoxide	Canada	Ontario	9.2	8.0	24 hr	-	-	-	11
Carbon Monoxide	Canada	Ontario	17.3	15.0	8 hr	46.1	40.0	1 hr	11
Carbon Monoxide	Czechoslovakia		1.0	0.9	24 hr	6.0	5.4	30 min	
Carbon Monoxide	East Germany		1.0	0.9	24 hr	3.0	2.7	30 min	3,4
Carbon Monoxide	Finland		10.0	9.0	8 hr	40.0	35.0	1 hr	17

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Carbon Monoxide	Hungary		2.0	1.7	24 hr	6.0	5.2	30 min	
Carbon Monoxide	Hungary		1.0	0.9	24 hr	3.0	2.6	30 min	53
Carbon Monoxide	Israel		11.5	10.0	8 hr	34.6	30.0	30 min	51
Carbon Monoxide	Italy		22.5	20.0	8 hr	57.2	50.0	30 min	19
Carbon Monoxide	Japan		11.5	10.0	24 hr	-	-	-	41
Carbon Monoxide	Japan		23.0	20.0	8 hr	-	-	-	41
Carbon Monoxide	Poland		0.5	0.45	24 hr	3.0	2.7	20 min	15
Carbon Monoxide	Romania		2.0	1.7	24 hr	6.0	5.2	30 min	
Carbon Monoxide	Spain		15.0	13.0	8 hr	45.0	39.0	30 min	18
Carbon Monoxide	USA		10.0	8.6	8 hr	40.0	34.6	1 hr	13
Carbon Monoxide	USSR		1.0	0.9	24 hr	3.0	2.7	30 min	6
Carbon Monoxide	West Germany		10.0	8.6	30 min	40.0	34.6	30 min	2,54
Carbon Monoxide	Yugoslavia		1.0	0.9	24 hr	3.0	2.6	30 min	
CARBON TETRACHLORIDE	East Germany		2.0	0.33	24 hr	4.0	0.66	30 min	3,4
Carbon Tetrachloride	Romania		1.0	0.15	24 hr	3.0	0.5	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

	Location		Long Term[16]			Short Term[16]			
Substance	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	Footnotes
Carbon Tetrachloride	USSR		2.0	0.3	24 hr	4.0	0.7	30 min	6
Carbon Tetrachloride	West Germany (VDI 2306)		3.0	0.5	30 min	10.0	1.5	30 min	2,7,9
CHLORINE	Bulgaria		0.03	0.01	24 hr	0.1	0.033	20 min	
Chlorine	Canada	Saskatchewan	0.03	0.01	24 hr	0.3	0.1	1 hr	48
Chlorine	Czechoslovakia		0.03	0.01	24 hr	0.1	0.033	30 min	
Chlorine	East Germany		0.03	0.01	24 hr	0.1	0.033	30 min	3,4
Chlorine	Hungary		0.3	0.1	24 hr	0.6	0.2	30 min	
Chlorine	Hungary		0.03	0.01	24 hr	0.1	0.033	30 min	53
Chlorine	Israel		0.1	0.03	24 hr	0.3	0.1	30 min	10
Chlorine	Italy		-	-	-	0.58	0.2	30 min	19
Chlorine	Poland		0.03	0.01	24 hr	0.1	0.033	20 min	15
Chlorine	Poland		0.01	0.033	24 hr	0.03	0.01	20 min	29
Chlorine	Romania		0.1	0.033	24 hr	0.3	0.1	30 min	
Chlorine	Spain		0.05	0.016	24 hr	0.3	0.1	30 min	18
Chlorine	USSR		0.03	0.01	24 hr	0.1	0.033	30 min	6

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Chlorine	West Germany (VDI 2106)		0.3	0.1	30 min	6.0	2.1	30 min	
Chlorine	West Germany		0.3	0.1	30 min	0.6	0.2	30 min	20
Chlorine	Yugoslavia		0.03	0.01	24 hr	0.1	0.033	30 min	
CHLOROANILINE (-m)	East Germany		0.01	0.003	24 hr	0.03	0.01	30 min	3,4
Chloroaniline (-m)	USSR		0.01	0.002	24 hr	-	-	-	6
Chloroaniline (-m)	Yugoslavia		-	-	-	0.04	0.013	30 min	
Chloroaniline (-p)	Bulgaria		-	-	-	0.04	0.008	20 min	
Chloroaniline (-p)	East Germany		0.01	0.002	24 hr	0.04	0.008	30 min	3,4
Chloroaniline (-p)	USSR		0.01	0.002	24 hr	0.04	0.008	30 min	1,6
CHLOROBENZENE	Bulgaria		0.1	0.02	24 hr	0.1	0.02	20 min	
Chlorobenzene	East Germany		0.1	0.02	24 hr	0.3	0.06	30 min	3,4
Chlorobenzene	USSR		0.1	0.02	24 hr	0.1	0.02	30 min	6
Chlorobenzene	West Germany (VDI 2306)		5.0	1.0	30 min	15.0	3.0	30 min	2,7,9
Chlorobenzene	Yugoslavia		0.1	0.02	24 hr	0.1	0.02	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
CHLOROFORM (Trichloro-methane)	West Germany (VDI 2306)		10.0	2.0	30 min	30.0	6.0	30 min	2,7,9
CHLOROPHENYL ISOCYANATE (-m)	Bulgaria		0.005	-	24 hr	0.005	-	20 min	
Chlorophenyl Isocyanate (-m)	East Germany		0.003	-	24 hr	0.005	-	30 min	3,4
Chlorophenyl Isocyanate (-m)	USSR		0.005	-	24 hr	0.005	-	30 min	6
Chlorophenyl Isocyanate (-m)	Yugoslavia		0.005	-	24 hr	0.005	-	30 min	
Chlorophenyl Isocyanate (-p)	Bulgaria		0.0015	0.0002	24 hr	0.0015	0.0002	20 min	
Chlorophenyl Isocyanate (-p)	East Germany		0.0015	0.0002	24 hr	0.0015	0.0002	30 min	3,4
Chlorophenyl Isocyanate (-p)	USSR		0.0015	0.0002	24 hr	0.0015	0.0002	30 min	6
Chlorophenyl Isocyanate (-p)	Yugoslavia		0.0015	0.0002	24 hr	0.0015	0.0002	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
CHLOROPRENE	Bulgaria		0.1	0.028	24 hr	0.1	0.028	20 min	
Chloroprene	East Germany		0.05	0.014	24 hr	0.1	0.028	30 min	3,4
Chloroprene	Israel		0.14	0.04	24 hr	0.5	0.14	30 min	10
Chloroprene	USSR		0.1	0.028	24 hr	0.1	0.028	30 min	6
Chloroprene	Yugoslavia		0.1	0.028	24 hr	0.1	0.028	30 min	
CHLOROTETRACYCLIN (Aureomycin)	East Germany		0.03	-	24 hr	0.05	-	30 min	3,4
Chlorotetracyclin	USSR		0.05	-	24 hr	0.05	-	30 min	6,46
CHROMIUM (asCr_6)	Romania		0.0015		24 hr	0.0015		30 min	
CHROMIUM-HEXAVALENT (as CrO_3)	East Germany		0.001		24 hr	0.0015		30 min	3,4
Chromium-Hexavalent (as CrO_3)	Israel		0.0015		24 hr	-	-	-	10
Chromium-Hexavalent (as CrO_3)	USSR		0.0015		24 hr	0.0015		20 min	6
Chromium-Hexavalent (as CrO_3)	Yugoslavia		0.0015		24 hr	0.0015		30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
CRESOL (All isomers)	West Germany (VDI 2306)		0.2	0.05	30 min	0.6	0.15	30 min	2,7,9
CYCLOHEXANE	East Germany		1.0	0.3	24 hr	1.4	0.4	30 min	3,4
Cyclohexane	USSR		1.4	0.4	24 hr	1.4	0.4	30 min	1,6
CYCLOHEXANOL	Bulgaria		0.06	0.015	24 hr	0.06	0.015	20 min	
Cyclohexanol	East Germany		0.06	0.015	24 hr	0.15	0.037	30 min	3,4
Cyclohexanol	USSR		0.06	0.015	24 hr	0.06	0.015	30 min	6
Cyclohexanol	Yugoslavia		0.06	0.015	24 hr	0.06	0.015	30 min	
CYCLOHEXANONE	Bulgaria		0.04	0.008	24 hr	0.04	0.008	20 min	
Cyclohexanone	East Germany		0.04	0.01	24 hr	0.1	0.02	30 min	3,4
Cyclohexanone	Hungary		10.0	2.5	24 hr	30.0	7.5	30 min	
Cyclohexanone	Hungary		0.04	0.01	24 hr	0.04	0.01	30 min	53
Cyclohexanone	USSR		-	-	-	0.04	0.01	30 min	6
Cyclohexanone	West Germany (VDI 2306)		10.0	2.0	30 min	30.0	6.0	30 min	2,7,9
Cyclohexanone	Yugoslavia		0.04	0.01	24 hr	0.04	0.01	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
CYCLOHEXANON OXINE	East Germany		0.04	0.01	24 hr	0.1	0.025	30 min	3,4
Cyclohexanon Oxine	USSR		-	-	-	0.1	0.025	30 min	6
DICHLOROETHANE	Bulgaria		1.0	0.25	24 hr	3.0	0.75	20 min	3,4
Dichloroethane	East Germany		1.0	0.25	24 hr	3.0	0.75	30 min	3,4
Dichloroethane	Israel		2.0	0.5	24 hr	6.0	1.5	30 min	10
Dichloroethane	Romania		1.0	0.25	24 hr	3.0	0.75	30 min	
Dichloroethane	USSR		1.0	0.25	24 hr	3.0	0.75	30 min	6
Dichloroethane	West Germany (VDI 2306)		8.0	2.0	30 min	25.0	6.0	30 min	2,7,9
Dichloroethane	Yugoslavia		1.0	0.25	24 hr	3.0	0.75	30 min	
2-3-DICHLORO-1-4-NAPHTHAQUINONE	Bulgaria		0.05	-	24 hr	0.05	-	20 min	
2-3-Dichloro-1-4-Naphthaquinone	East Germany		0.02	-	24 hr	0.05	-	30 min	3,4
2-3-Dichloro-1-4-Naphthaquinone	USSR		0.05	-	24 hr	0.05	-	30 min	6
2-3-Dichloro-1-4-Naphthaquinone	Yugoslavia		0.05	-	24 hr	0.05	-	30 min	

Table 2 AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
DIETHYLAMINE	Bulgaria		0.05	0.02	24 hr	0.05	0.02	20 min	
Diethylamine	East Germnay		0.02	0.007	24 hr	0.05	0.016	30 min	3,4
Diethylamine	Romania		0.05	0.03	24 hr	0.05	0.03	30 min	
Diethylamine	USSR		0.05	0.016	24 hr	0.05	0.016	30 min	6
Diethylamine	West Germany (VDI 2306)		0.03	0.01	30 min	0.05	0.09	30 min	7,9
Diethylamine	Yugoslavia		0.05	0.016	24 hr	0.05	0.016	30 min	
DIETHYLETHER	West Germany (VDI 2306)		65.0	20.0	30 min	155.0	60.0	30 min	2,7,9
DIKETENE	Bulgaria		-	-	-	0.007	0.002	20 min	
Diketene	East Germany		0.002	0.007	24 hr	0.007	0.002	30 min	3,4
Diketene	USSR		-	-	-	0.007	0.002	30 min	6
Diketene	Yugoslavia		-	-	-	0.007	0.002	30 min	
DIMETHYLAMINE	East Germany		0.005	0.003	24 hr	0.015	0.0075	30 min	3,4
Dimethylamine	USSR		0.005	0.003	24 hr	0.005	0.003	30 min	16
Dimethylamine	West Germany (VDI 2306)		0.02	0.01	30 min	0.06	0.03	30 min	2,7,9
DIMETHYLANILINE	Bulgaria		-	-	-	0.0055	0.001	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Dimethylaniline	East Germany		0.005	0.001	24 hr	0.015	0.003	30 min	3,4
Dimethylaniline	USSR		0.0055	0.001	24 hr	0.0055	0.001	30 min	6
Dimethylaniline	Yugoslavia		-	-	-	0.0055	0.001	30 min	
DIMETHYL DISULFIDE	Bulgaria		-	-	-	0.7	0.18	20 min	
Dimethyl disulfide	East Germany		0.2	0.78	24 hr	0.7	0.18	30 min	3,4
Dimethyl disulfide	USSR		-	-	-	0.7	0.18	30 min	6
Dimethyl disulfide	Yugoslavia		-	-	-	0.07	0.018	30 min	
DIMETHYLFORMAMIDE	Bulgaria		0.03	0.01	24 hr	0.03	0.01	20 min	
Dimethylformamide	East Germany		0.01	0.003	24 hr	0.03	0.01	30 min	3,4
Dimethylformamide	Israel		0.018	0.006	24 hr	0.06	0.02	30 min	10
Dimethylformamide	USSR		0.03	0.01	24 hr	0.03	0.01	30 min	6
Dimethylformamide	Yugoslavia		0.03	0.01	24 hr	0.03	0.01	30 min	
DIMETHYL SULFIDE	Bulgaria		-	-	-	0.08	0.03	20 min	
Dimethyl sulfide	East Germany		0.03	0.01	24 hr	0.08	0.03	30 min	3,4
Dimethyl sulfide	USSR		-	-	-	0.08	0.03	30 min	6

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Dimethyl sulfide	Yugoslavia		-	-	-	0.08	0.03	30 min	
DINITROBENZENE	West Germany	(VDI 2306)	0.035	0.005	30 min	0.1	0.015	30 min	2,7,9
DINYL (Diphenyl + its oxide)	Bulgaria		0.01	0.0015	24 hr	0.01	0.0015	20 min	
Dinyl (Diphenyl + its oxide)	East Germany		0.003	0.0045	24 hr	0.01	0.0015	30 min	3,4
Dinyl (Diphenyl + its oxide)	Romania		0.01	0.0015	24 hr	0.01	0.0015	30 min	
Dinyl (Diphenyl + its oxide)	USSR		0.01	0.0015	24 hr	0.01	0.0015	30 min	6
Dinyl (Diphenyl + its oxide	Yugoslavia		0.01	0.0015	24 hr	0.01	0.0015	30 min	
DIOXANE (Diethylene dioxide)	West Germany		20.0	5.0	30 min	60.0	15.0	30 min	2,7,9
DIVINYL	Bulgaria		1.0	0.4	24 hr	3.0	1.2	20 min	
Divinyl	East Germany		1.0	0.4	24 hr	3.0	1.2	30 min	3,4
Divinyl	USSR		1.0	0.4	24 hr	3.0	1.2	30 min	6
Divinyl	Yugoslavia		1.0	0.4	24 hr	3.0	1.2	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

	Location		Long Term[16]			Short Term[16]			
Substance	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	Foot-notes
EPICHLOROHYDRIN	Bulgaria		0.2	0.05	24 hr	0.2	0.05	20 min	
Epichlorohydrin	East Germany		0.06	0.016	24 hr	0.2	0.05	30 min	3,4
Epichlorohydrin	USSR		0.2	0.05	24 hr	0.2	0.05	30 min	6
Epichlorohydrin	Yugoslavia		0.2	0.05	24 hr	0.2	0.05	30 min	
ETHANOL	Bulgaria		5.0	2.4	24 hr	5.0	2.5	20 min	
Ethanol	East Germany		5.0	2.5	24 hr	15.0	7.5	30 min	3,4
Ethanol	USSR		5.0	2.5	24 hr	5.0	2.5	30 min	6
Ethanol	West Germany (VDI 2306)		100.0	50.0	30 min	300.0	150.0	30 min	2,7,9
Ethanol	Yugoslavia		5.0	2.5	24 hr	5.0	2.5	30 min	
ETHYL ACETATE	Bulgaria		0.1	0.029	24 hr	0.1	0.029	20 min	
Ethyl Acetate	East Germany		0.1	0.029	24 hr	0.3	0.085	30 min	3,4
Ethyl Acetate	Israel		14.0	4.0	24 hr	42.0	12.0	30 min	10
Ethyl Acetate	USSR		0.1	0.029	24 hr	0.1	0.029	30 min	6

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Ethyl Acetate	West Germany	(VDI 2306)	75.0	20.0	30 min	225.0	60.0	30 min	2,7,9
Ethyl Acetate	Yugoslavia		0.1	0.029	24 hr	0.1	0.029	30 min	
ETHYLBENZENE	East Germany		0.02	0.005	24 hr	0.06	0.014	30 min	3,4
Ethylbenzene	USSR		0.02	0.005	24 hr	0.02	0.005	30 min	6
ETHYLENE	Bulgaria		3.0	2.3	24 hr	3.0	2.3	20 min	
Ethylene	East Germany		2.0	1.53	24 hr	3.0	2.3	30 min	3,4
Ethylene	Israel		0.26	0.2	24 hr	0.65	0.5	30 min	10
Ethylene	USSR		3.0	2.3	24 hr	3.0	2.3	30 min	
Ethylene	Yugoslavia		3.0	2.3	24 hr	3.0	2.3	30 min	
ETHYLENE OXIDE	Bulgaria		0.03	0.015	24 hr	0.3	0.15	20 min	
Ethylene Oxide	East Germany		0.03	0.015	24 hr	0.3	0.15	30 min	3,4
Ethylene Oxide	USSR		0.03	0.15	24 hr	0.3	0.15	30 min	6
Ethylene Oxide	West Germany	(VDI 2301)	4.0	2.0	30 min	12.0	6.0	30 min	2,7,9
Ethylene Oxide	Yugoslavia		0.03	0.015	24 hr	0.3	0.15	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m³	ppm	Averaging time	mg/m³	ppm	Averaging time	
ETHYLENIMINE	East Germany		0.001	0.0005	24 hr	0.003	0.0015	30 min	3,4
Ethylenimine	USSR		0.001	0.0005	24 hr	0.001	0.0005	30 min	6
FLUORIDES (as F)	Bulgaria		0.02	0.01	24 hr	0.005	0.002	20 min	
Fluorides (as F)	Canada	Ontario	0.001	0.0005	30 days	-	-	-	11
Fluorides (as F)	Canada	Ontario	0.002	0.001	24 hr	-	-	-	11
Flourides (as F)	Czechoslovakia		0.01	0.005	24 hr	0.03	0.015	30 min	43
Fluorides (as F)	East Germany		0.005	0.002	24 hr	0.02	0.01	30 min	3,4,43
Fluorides (as F)	Hungary		0.03	0.015	24 hr	0.1	0.05	30 min	
Fluorides (as F)	Hungary		0.01	0.005	24 hr	0.03	0.015	30 min	53
Fluorides (as F)	Israel		0.01	0.005	24 hr	0.03	0.015	30 min	10
Fluorides (as F)	Italy		0.02	0.01	24 hr	0.06	0.03	30 min	19
Fluorides (as F)	Romania		0.005	0.002	24 hr	0.02	0.01	30 min	
Fluorides (as F)	Spain		0.02	0.01	24 hr	0.06	0.03	30 min	18

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Fluorides (as F, gaseous compounds)	USSR		0.005	0.002	24 hr	0.02	0.01	20 min	6,43
Fluorides (gaseous and salt combined)	East Germany		0.01	-	24 hr	0.03	-	30 min	3,4
Fluorides (as HF)	Canada	Manitoba	0.0015	0.002	24 hr	-	-	-	49
Fluorides (as HF)	Canada	Manitoba	0.0008	0.0006	24 hr	-	-	-	11
Fluorides (as HF)	Canada	New Found-land	0.00045	0.005	30 days	0.0009	0.001	24 hr	
Fluorides (as HF)	Canada	Saskatche-wan	0.003	0.004	24 hr	-	-	-	48
Fluorides (as HF)	Hungary		0.02	0.015	24 hr	0.015	30 min		
Fluorides (as HF)	Hungary		0.0013	0.001	24 hr	0.005	0.004	30 min	53
Fluorides (as HF)	Netherlands		0.01	0.008	24 hr	-	-	-	
Fluorides (as HF)	Spain		0.01	0.008	24 hr	0.03	0.022	30 min	18
Fluorides (as HF)	USSR		0.01	0.008	24 hr	0.03	0.022	30 min	6,44
Fluorides (as HF)	West Germany		0.002	0.015	30 min	0.005	0.004	30 min	2,54

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Fluorides (as HF)	Yugoslavia		0.005	0.004	24 hr	0.02	0.015	30 min	
Fluorides (readily soluble inorganic)	Bulgaria		0.01	-	24 hr	0.03	-	20 min	44
Fluorides (readily soluble inorganic)	East Germany		0.01	-	24 hr	0.03	-	30 min	3,4,44
Fluorides (readily soluble inorganic	Poland		0.01	-	24 hr	0.03	-	20 min	15
Fluorides (readily soluble inorganic)	Poland		0.003	-	24 hr	0.01	-	20 min	29
Fluorides (readily soluble inorganic)	Yugoslavia		0.01	-	24 hr	0.03	-	30 min	44
Fluorides (sparingly soluble)	East Germany		0.03	-	24 hr	0.2	-	30 min	3,4,42
Fluorides (sparingly soluble)	USSR		0.03	-	24 hr	0.2	-	30 min	6,42
Fluorides (in mixture with gaseous)	Bulgaria		0.01	-	24 hr	0.03	-	30 min	
Fluorides (insoluble)	Yugoslavia		0.03	-	24 hr	0.2	-	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
FORMALDEHYDE	Bulgaria		0.012	0.01	24 hr	0.035	0.025	20 min	
Formaldehyde	Czechoslovakia		0.015	0.01	24 hr	0.05	0.033	30 min	
Formaldehyde	East Germany		0.012	0.01	24 hr	0.035	0.025	30 min	3,4
Formaldehyde	Hungary		0.03	0.02	24 hr	0.07	0.005	30 min	
Formaldehyde	Hungary		0.012	0.008	24 hr	0.035	0.0025	30 min	53
Formaldehyde	Israel		0.03	0.02	24 hr	0.07	0.06	30 min	10
Formaldehyde	Poland		0.01	0.007	24 hr	0.02	0.014	20 min	15
Formaldehyde	Poland		0.01	0.007	24 hr	0.02	0.014	20 min	29
Formaldehyde	Romania		0.01	0.007	24 hr	0.03	0.02	30 min	
Formaldehyde	USSR		0.012	0.01	24 hr	0.035	0.029	30 min	6
Formaldehyde	West Germany (VDI 2306)		0.03	0.02	30 min	0.07	0.06	30 min	2,7,9
Formaldehyde	Yugoslavia		0.012	0.01	24 hr	0.035	0.029	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
FURFURAL	Bulgaria		0.05	0.013	24 hr	0.05	0.013	20 min	
Furfural	East Germany		0.05	0.013	24 hr	0.15	0.04	30 min	3,4
Furfural	Israel		0.08	0.02	24 hr	0.25	0.06	30 min	10
Furfural	Romania		0.05	0.013	24 hr	0.15	0.04	30 min	
Furfural	USSR		0.05	0.013	24 hr	0.05	0.013	20 min	6
Furfural	West Germany (VDI 2306)		0.08	0.02	30 min	0.25	0.06	30 min	2,7,9
Furfural	Yugoslavia		0.05	0.013	24 hr	0.05	0.013	30 min	
HEXACHLOROCYCLOHEXANE	East Germany		0.01	-	24 hr	0.03	-	30 min	3,4
Hexachlorocyclohexane	USSR		0.03	-	24 hr	0.03	-	30 min	6
HEXAMETHYLENEDIAMINE	Bulgaria		0.001	-	24 hr	0.001	-	30 min	
Hexamethylenediamine	East Germany		0.001	-	24 hr	0.003	-	30 min	3,4
Hexamethylenediamine	USSR		0.001	-	24 hr	0.001	-	30 min	6
Hexamethylenediamine	Yugoslavia		0.01	-	24 hr	0.01	-	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

	Location		Long Term[16]			Short Term[16]			
Substance	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	Foot-notes
HYDROCARBONS (total)	Canada	Manitoba	0.16	0.24	3 hr	-	-	-	49
Hydrocarbons (total)	Canada	Manitoba	0.125	0.19	3 hr	-	-	-	11
Hydrocarbons (total)	Israel		2.0	3.0	24 hr	5.0	7.5	30 min	10
Hydrocarbons (total)	Italy		26.6	40.0	24 hr	53.3	80.0	30 min	19,57
Hydrocarbons (total)	United States		0.16	0.24	3 hr	-	-	-	13,37
HYDROCHLORIC ACID (as H+)	Bulgaria		0.006	-	24 hr	0.006	-	20 min	
Hydrochloric Acid (as H+)	Czechoslovakia		0.01	-	30 min	-	-	-	
Hydrochloric Acid (as H+)	USSR		0.006	-	24 hr	0.006	-	30 min	6
Hydrochloric Acid (as H+)	Yugoslavia		0.006	-	24 hr	0.006	-	30 min	
HYDROCHLORIC ACID (as HCl)	Bulgaria		0.2	0.14	24 hr	-	-		

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Hydrochloric Acid (as HCl)	Czechoslovakia		-	-	-	0.01	0.007	30 min	
Hydrochloric Acid (as HCl)	East Germany		0.015	0.01	24 hr	0.05	0.035	30 min	3,4
Hydrochloric Acid (as HCl)	Hungary		0.7	0.5	24 hr	1.4	1.0	30 min	
Hydrochloric Acid (as HCl)	Hungary		0.2	0.14	24 hr	0.2	0.14	30 min	53
Hydrochloric Acid (as HCl)	Israel		0.4	0.3	24 hr	1.4	1.0	30 min	10
Hydrochloric Acid (as HCl)	Italy		0.04	0.03	24 hr	0.28	0.2	30 min	19
Hydrochloric Acid (as HCl)	Poland		0.1	0.07	24 hr	0.2	0.14	20 min	15
Hydrochloric Acid (as HCl)	Poland		0.02	0.014	24 hr	0.05	0.035	20 min	29
Hydrochloric Acid (as HCl)	Romania		0.1	0.07	24 hr	0.3	0.21	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Hydrochloric Acid (as HCl)	USSR		0.2	0.14	24 hr	0.2	0.14	30 min	6
Hydrochloric Acid (as HCl)	West Germany (VDI 2306 Part 2)		0.7	0.5	30 min	1.4	1.0	30 min	2,7,47
Hydrochloric Acid (as HCl)	West Germany		0.05	0.035	30 min	0.15	0.1	30 min	2,54
Hydrochloric Acid (as HCl)	Yugoslavia		-	-	-	0.2	0.14	30 min	
HYDROGEN CYANIDE	East Germany		0.005	0.004	24 hr	0.015	0.014	30 min	3,4
Hydrogen Cyanide	USSR		0.01	0.009	24 hr	-	-	-	
HYDROGEN SULFIDE	Bulgaria		0.008	0.005	24 hr	0.008	0.005	20 min	6
Hydrogen Sulfide	Canada	Alberta	0.004	0.003	24 hr	0.014	0.009	1 hr	
Hydrogen Sulfide	Canada	Alberta	-	-	-	0.017	0.011	30 min	
Hydrogen Sulfide	Canada	Manitoba	0.017	0.011	24 hr	0.028	0.018	1 hr	
Hydrogen Sulfide	Canada	New Foundland	-	-	-	0.03	0.02	1 hr	49

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Hydrogen Sulfide	Canada	Ontario	-	-	-	0.03	0.02	1 hr	11
Hydrogen Sulfide	Canada	Saskatchewan	0.007	0.005	24 hr	0.07	0.05	1 hr	48
Hydrogen Sulfide	Czechoslovakia		0.008	0.005	24 hr	0.008	0.005	30 min	
Hydrogen Sulfide	East Germany		0.008	0.005	24 hr	0.015	0.01	30 min	3,4
Hydrogen Sulfide	Finland		0.05	0.03	24 hr	0.15	0.1	30 min	17
Hydrogen Sulfide	Hungary		0.15	0.1	24 hr	0.3	0.2	30 min	
Hydrogen Sulfide	Hungary		0.008	0.005	24 hr	0.008	0.005	30 min	53
Hydrogen Sulfide	Israel		0.045	0.03	24 hr	0.15	0.1	30 min	51
Hydrogen Sulfide	Italy		0.04	0.03	24 hr	0.1	0.07	30 min	19
Hydrogen Sulfide	Poland		0.02	0.013	24 hr	0.06	0.04	20 min	15
Hydrogen Sulfide	Poland		0.008	0.005	24 hr	0.008	0.005	20 min	29
Hydrogen Sulfide	Romania		0.01	0.006	24 hr	0.03	0.02	30 min	
Hydrogen Sulfide	Spain		0.004	0.0025	24 hr	0.01	0.006	30 min	18

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Hydrogen Sulfide	USSR		0.008	0.005	24 hr	0.008	0.005	30 min	6
Hydrogen Sulfide	West Germany (VDI 2107)		0.15	0.1	30 min	0.3	0.2	30 min	2,7,8
Hydrogen Sulfide	West Germany		0.15	0.1	30 min	0.3	0.2	30 min	2
Hydrogen Sulfide	West Germany		0.02	0.013	30 min	0.05	0.03	30 min	2,54
Hydrogen Sulfide	Yugoslavia		0.008	0.005	24 hr	0.008	0.005	30 min	
INTRATHION (M-81)	USSR		0.001	-	24 hr	0.001	-	30 min	6
ISO-OCTANOL	East Germany		0.05	-	24 hr	0.15	-	30 min	3,4
Iso-Octanol	USSR		-	-	-	0.15	-	30 min	6
ISO-PROPANOL	East Germany		0.6	0.24	24 hr	2.0	0.82	30 min	3,4
ISOPROPYL BENZENE	Bulgaria		0.014	-	24 hr	0.014	-	20 min	
Isopropyl Benzene	East Germany		0.014	-	24 hr	0.05	-	30 min	3,4
Isopropyl Benzene	USSR		0.014	-	24 hr	0.014	-	30 min	6
Isopropyl Benzene (hydroperoxide)	Bulgaria		0.007	-	24 hr	0.007	-	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Isopropyl Benzene (hydroperoxide)	East Germany		0.007	-	24 hr	0.02	-	30 min	3,4
Isopropyl Benzene (hydroperoxide)	USSR		0.007	-	24 hr	0.007	-	30 min	6
KRESOL	West Germany (VDI 2306)		0.2	-	30 min	0.6	-	30 min	2,7, 8,9
LEAD (as Pb)	Bulgaria		0.0007	-	24 hr	-	-	-	45
Lead (as Pb)	Canada	Manitoba	0.01		30 days	-	-	-	
Lead (as Pb)	Canada	Manitoba	0.015	-	24 hr	-	-	-	
Lead (as Pb)	Canada	Newfoundland	0.01	-	30 days	-	-	-	49
Lead (as Pb)	Canada	Newfoundland	0.015	-	24 hr	-	-	-	
Lead (as Pb)	Canada	Ontario	0.01	-	30 days	-	-	-	11
Lead (as Pb)	Canada	Ontario	0.015	-	24 hr	-	-	-	
Lead (as Pb)	Czechoslovakia		0.0007	-	24 hr	-	-	-	45
Lead (as Pb)	East Germany		0.0007	-	24 hr	-	-	-	3,4

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Lead (as Pb)	Hungary		0.001	-	24 hr	0.002	-	30 min	
Lead (as Pb)	Hungary		0.0007	-	24 hr	0.0007	-	30 min	53
Lead (as Pb)	Israel		0.005	-	24 hr	-	-	-	51
Lead (as Pb)	Italy		0.01		8 hr	0.05		30 min	19
Lead (as Pb)	Poland		0.001		24 hr	-	-	-	15
Lead (as Pb)	Poland		0.0005		24 hr	-	-	-	29
Lead (as Pb)	Romania		0.001	-	24 hr	-	-	-	
Lead (as Pb)	USSR		0.0007	-	24 hr	-	-	-	6,45
Lead (as Pb)	Yugoslavia		0.0007	-	24 hr	-	-	-	
LEAD SULFIDE (as Pb)	Bulgaria		0.0007	-	24 hr	-	-	-	
Lead Sulfide (as Pb)	East Germany		0.0017	-	24 hr	-	-	-	3,4
Lead Sulfide (as Pb)	Israel		0.0035		24 hr	-	-	-	10
Lead Sulfide (as Pb)	USSR		0.0017	-	24 hr	-	-	-	6

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Lead Sulfide (as Pb)	Yugoslavia		0.0017	-	24 hr	-	-	-	
MALATHION (Carbophos)	Bulgaria		-	-	-	0.015	-	20 min	
Malathion (Carbophos)	USSR		-	-	-	0.015	-	30 min	6
Malathion (Carbophos)	Yugoslavia		-	-	-	0.015	-	30 min	
MALEIC ANHYDRIDE	Bulgaria		0.05	0.01	24 hr	0.2	0.05	20 min	
Maleic Anhydride	East Germany		0.05	0.012	24 hr	0.2	0.05	30 min	3,4
Maleic Anhydride	USSR		0.05	0.012	24 hr	0.2	0.05	30 min	6
Maleic Anhydride	Yugoslavia		0.05	0.01	24 hr	0.2	0.05	30 min	
MANGANESE (as Mn)	Israel		0.01	-	24 hr	0.03	-	30 min	10
Manganese (as Mn)	Romania		0.01	-	24 hr	0.03	-	30 min	
Manganese (as Mn)	USSR		0.01	-	24 hr	-	-	-	6
Manganese (as MnO_2)	Bulgaria		0.01	-	24 hr	-	-	-	
Manganese (as MnO_2)	Czechoslovakia		0.01	-	24 hr	-	-	-	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Manganese (as MnO_2)	East Germany		0.01	-	24 hr	-	-	-	3,4
Manganese (as MnO_2)	Yugoslavia		0.01	-	24 hr	-	-	-	
MERCURY (as Hg)	Bulgaria		0.0003	-	24 hr	-	-	-	
Mercury (as Hg)	East Germany		0.0003	-	24 hr	-	-	-	3,4
Mercury (as Hg)	Hungary		0.0003	-	24 hr	0.0003	-	24 hr	
Mercury (as Hg)	Hungary		0.0003	-	24 hr	-	-	-	53
Mercury (as Hg)	Israel		0.001	-	24 hr	-	-	-	10
Mercury (as Hg)	Romania		0.001	-	24 hr	-	-	-	
Mercury (as Hg)	USSR		0.003	-	24 hr	-	-	-	6
Mercury (as Hg)	Yugoslavia		0.0003		24 hr	-	-	-	
MESIDINE (2-AMINO-1,3,5 TRIMETHYL-BENZENE)	Bulgaria		-	-	-	0.003	-	20 min	
Mesidene (2-amino-1,3,5 Trimethyl-benzene)	USSR		0.003	-	24 hr	0.003	-	30 min	6

Table 2 (cont[illegible]) AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Mesidine (2-amino-1,3,5 Trimethyl-benzene)	Yugoslavia		-	-	-	0.003	-	30 min	
METHANOL	Bulgaria		0.5	0.38	24 hr	1.0	0.77	20 min	
Methanol	Czechoslovakia		0.5	0.38	24 hr	1.0	0.77	30 min	
Methanol	East Germany		0.5	0.38	24 hr	1.0	0.77	30 min	3,4
Methanol	Hungary		15.0	10.0	24 hr	40.0	30.0	30 min	
Methanol	Hungary		0.5	0.38	24 hr	1.0	0.77	30 min	53
Methanol	Israel		1.3	1.0	24 hr	4.0	3.0	30 min	10
Methanol	Romania		1.0	0.77	24 hr	3.0	2.3	30 min	
Methanol	USSR		0.5	0.38	24 hr	1.0	0.77	30 min	6
Methanol	West Germany (VDI 2306)		15.0	10.0	30 min	40.0	30.0	30 min	2,7,9
Methanol	Yugoslavia		0.5	0.38	24 hr	1.0	0.77	30 min	
METHYL ACETATE	Bulgaria		0.07	0.023	24 hr	0.07	0.023	20 min	
Methy Acetate	East Germany		0.07	0.023	24 hr	0.2	0.066	30 min	3,4

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Methyl Acetate	Israel		3.0	1.0	24 hr	9.0	3.0	30 min	10
Methyl Acetate	USSR		0.07	0.023	24 hr	0.07	0.023	30 min	6
Methyl Acetate	West Germany	(VDI 2306)	15.0	5.0	30 min	45.0	15.0	30 min	2,7,9
Methyl Acetate	Yugoslavia		0.07	0.023	24 hr	0.07	0.023	30 min	
METHYL ACRYLATE	Bulgaria		-	-	-	0.01	0.003	20 min	
Methyl Acrylate	East Germany		0.01	0.003	24 hr	0.03	0.009	30 min	3,4
Methyl Acrylate	USSR		0.001	0.003	24 hr	0.01	0.003	30 min	6
Methyl Acrylate	Yugoslavia		-	-	-	0.01	0.003	30 min	
METHYL ANILINE	USSR		0.04	0.01	24 hr	0.04	0.01	30 min	6
Methyl Aniline	Yugoslavia		-	-	-	0.04	0.01	30 min	
METHYL ETHYL KETONE	West Germany	(VDI 2306)	30.0	10.0	30 min	90.0	30.0	30 min	2,7,9
METHYL ISOBUTYL KETONE	West Germany	(VDI 2306)	20.0	5.0	30 min	65.0	15.0	30 min	7,9
METHYL MERCAPTAN	Bulgaria		-	-		9×10^{-6}	-	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Methyl Mercaptan	East Germany		-	-	-	10^{-5}	-	30 min	3,4
Methyl Mercaptan	USSR		-	-	-	9×10^{-6}	-	30 min	
Methyl Mercaptan	Yugoslavia		-	-	-	9×10^{-6}	-	30 min	
METHYL METHACRYLATE	Bulgaria		0.1	0.025	24 hr	0.1	0.025	20 min	
Methyl Methacrylate	East Germany		0.1	0.025	24 hr	0.3	0.075	30 min	3,4
Methyl Methacrylate	Israel		0.2	0.05	24 hr	0.6	0.15	30 min	10
Methyl Methacrylate	USSR		0.1	0.025	24 hr	0.1	0.025	30 min	6
Methyl Methacrylate	Yugoslavia		0.1	0.025	24 hr	0.1	0.025	30 min	
METHYL PARATHION (metaphos)	Bulgaria		-	-	-	0.008	-	20 min	
Methyl Parathion (metaphos)	USSR		-	-	-	0.008	-	30 min	6
Methyl Parathion (metaphos)	Yugoslavia		-	-	-	0.008	-	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
METHYLENE CHLORIDE	West Germany (VDI 2306)		20.0	5.0	30 min	55.0	15.0	30 min	2,7,9
METHYLSTYRENE (-α)	Bulgaria		0.04	0.01	24 hr	0.04	0.01	20 min	1,2
Methylstyrene (-α)	East Germany		0.03	0.0075	24 hr	0.05	0.0125	30 min	3,4
Methylstyrene (-α)	USSR		0.0[illegible]	0.01	24 hr	0.04	0.01	30 min	6
Methylstyrene (-α)	Yugoslavia		0.04	0.01	24 hr	0.04	0.01	30 min	
MONOETHYL AMINE	East Germany		0.01	0.005	24 hr	0.03	0.015	30 min	3,4
Monoethyl Amine	West Germany (VDI 2306)		0.02	0.01	30 min	0.06	0.03	30 min	2,7,9
Monoethyl Amine	USSR		0.01	0.005	24 hr	0.01	0.005	30 min	6
MONOMETHYL ANILINE	Bulgaria		-	-	-	0.04	0.009	20 min	
Monomethyl Aniline	East Germany		0.03	0.007	24 hr	0.05	0.01	30 min	3,4
NAPHTHALENE	East Germany		0.001	0.0002	24 hr	0.003	0.0006	30 min	3,4
Naphthalene	USSR		0.003	0.0006	24 hr	0.003	0.0006	30 min	6
Naphthalene	West Germany (VDI 2306)		2.5	0.5	30 min	7.5	1.5	30 min	2,7,9
NAPHTHAQUINONE (-α)	Bulgaria		0.005	0.001	24 hr	0.005	0.001	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Naphthaquinone (-α)	East Germany		0.002	0.0004	24 hr	0.005	0.001	30 min	3,4
Naphthaquinone (-α)	USSR		0.005	0.001	24 hr	0.005	0.001	30 min	6
Naphthaquinone (-α)	Yugoslavia		0.005	0.001	24 hr	0.005	0.001	30 min	
NITRIC ACID	East Germany		0.06	0.024	24 hr	0.14	0.056	30 min	3,4
Nitric Acid	Hungary		1.3	0.52	24 hr	2.6	1.04	30 min	
Nitric Acid	Hungary		0.4	0.16	24 hr	0.4	0.16	30 min	53
Nitric Acid	Israel		0.42	0.17	24 hr	1.3	0.5	30 min	10
Nitric Acid	West Germany (VDI 2106)		1.3	0.5	30 min	2.6	1.0	30 min	2,7,47
Nitric Acid (as HNO_3)	Bulgaria		-	-	-	0.4	0.15	20 min	
Nitric Acid (as HNO_3)	USSR		0.4	0.15	24 hr	0.4	0.15	30 min	6
Nitric Acid (as HNO_3)	Yugoslavia		-	-	-	0.4	0.15	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Nitric Acid (as H+)	Bulgaria		0.006	0.0024	24 hr	0.006	0.0024	20 min	
Nitric Acid (as H+)	Czechoslovakia		-	-	-	0.01	0.004	30 min	
Nitric Acid (as H+)	USSR		0.006	0.0024	24 hr	0.006	0.0024	30 min	6
Nitric Acid (as H+)	Yugoslavia		0.006	0.0024	24 hr	0.006	0.0024	30 min	
NITROBENZENE	Bulgaria		-	-	-	0.04	0.008	20 min	
Nitrobenzene	East Germany		0.005	0.001	24 hr	0.01	0.002	30 min	3,4
Nitrobenzene	Hungary		0.3	0.06	24 hr	0.85	0.17	30 min	
Nitrobenzene	Hungary		0.008	0.0016	24 hr	0.08	0.016	30 min	53
Nitrobenzene	USSR		0.008	0.0016	24 hr	0.008	0.0016	30 min	6
Nitrobenzene	West Germany (VDI 2306)		0.3	0.005	30 min	0.85	0.15	30 min	2,7,9
Nitrobenzene	Yugoslavia		0.008	0.0016	24 hr	0.008	0.0016	30 min	
o-NITROCHLOROBENZENE	East Germany		0.004	-	24 hr	0.008	-	30 min	3,4
p-Nitrochlorobenzene	East Germany		0.004	-	24 hr	0.008	-	30 min	3,4

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Nitrochlorobenzene (o-and-p)	USSR		0.004	-	24 hr	-	-	-	6
NITROGEN DIOXIDE	Argentina		-	-	-	0.85	0.45	1 hr	
Nitrogen Dioxide	Bulgaria		0.085	0.045	24 hr	0.085	0.045	20 min	
Nitrogen Dioxide	Canada	Saskatchewan	0.02	0.01	24 hr	0.04	0.02	1 hr	48
Nitrogen Dioxide	Czechoslovakia		0.1	0.05	24 hr	0.3	0.16	30 min	
Nitrogen Dioxide	Finland		0.2	0.1	24 hr	0.56	0.3	30 min	18
Nitrogen Dioxide	Hungary		0.15	0.08	24 hr	0.5	0.27	30 min	
Nitrogen Dioxide	Hungary		0.085	0.05	24 hr	0.085	-	30 min	53
Nitrogen Dioxide	Japan		0.04	0.02	24 hr	-	-	-	41
Nitrogen Dioxide	Romania		0.1	0.05	24 hr	0.3	0.16	30 min	
Nitrogen Dioxide	USSR		0.085	0.045	24 hr	0.085	0.045	30 min	6
Nitrogen Dioxide	West Germany		0.1	0.05	30 min	0.3	0.16	30 min	2,54
Nitrogen Dioxide	Yugoslavia		0.085	0.045	24 hr	0.085	0.045	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
NITROGEN MONOXIDE	West Germany		0.4	-	30 min	0.8	-	30 min	2,54
NITROGEN OXIDES (as NO_2)	Argentina		0.9	0.45	1 hr	-	-	-	
Nitrogen Oxides (as NO_2)	Canada	Alberta	0.06	0.03	1 yr	-	-	-	
Nitrogen Oxides (as NO_2)	Canada	Alberta	0.2	0.1	24 hr	0.4	0.2	1 hr	
Nitrogen Oxides (as NO_2)	Canada	Manitoba	0.1	0.05	1 yr	-	-	-	49
Nitrogen Oxides (as NO_2)	Canada	Manitoba	0.06	0.03	1 yr	-	-	-	11
Nitrogen Oxides (as NO_2)	Canada	Manitoba	0.13	0.07	24 hr	0.38	0.19	1 hr	49
Nitrogen Oxides (as NO_2)	Canada	Manitoba	0.1	0.05	24 hr	0.19	0.10	1 hr	11
Nitrogen Oxides (as NO_2)	Canada	Newfoundland	0.2	0.1	24 hr	0.4	0.2	1 hr	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Nitrogen Oxides (as NO_2)	Canada	Ontario	0.2	0.1	24 hr	0.4	0.2	1 hr	11
Nitrogen Oxides (as NO_2)	East Germany		0.004	0.002	24 hr	0.1	0.06	30 min	3,4
Nitrogen Oxides (as NO_2)	Hungary		0.15	0.075	24 hr	0.5	0.25	30 min	
Nitrogen Oxides (as NO_2)	Hungary		0.05	0.025	24 hr	0.15	0.075	30 min	53
Nitrogen Oxides (as NO_2)	Israel		0.6	0.3	24 hr	1.0	0.5	30 min	51
Nitrogen Oxides (as NO_2)	Italy		0.2	0.1	24 hr	0.6	0.3	30 min	19
Nitrogen Oxides (as NO_2)	Poland		0.2	0.1	24 hr	0.6	0.3	20 min	
Nitrogen Oxides (as NO_2)	Poland		0.05	0.025	24 hr	0.15	0.075	20 min	29
Nitrogen Oxides (as NO_2)	Spain		0.2	0.1	24 hr	0.4	0.2	30 min	18

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Nitrogen Oxides (as NO_2)	United States		0.1	0.05	1 yr	-	-	-	13,37
Nitrogen Oxides (as NO_2)	West Germany (VDI 2105)		1.0	0.5	30 min	2.0	1.0	30 min	2,7,8
NITROGEN PENTOXIDE	Yugoslavia		0.1	-	24 hr	0.3	-	30 min	
OXIDANTS (by KI)	Canada		0.05	0.025	24 hr	0.16	0.08	1 hr	
Oxidants (by KI)	Israel		0.2	0.1	24 hr	0.1	0.05	1 hr	10
Oxidants (by KI)	Japan		-	-	-	0.12	0.06	1 hr	
Oxidants (as O_3)	Argentina		-	-	-	0.2	0.1	1 hr	
Oxidants (as O_3)	Canada		0.05	0.025	24 hr	0.16	0.08	1 hr	49,50
Oxidants (as O_3)	Canada		0.03	0.015	1 yr	-	-	-	11,50
Oxidants (as O_3)	Canada		0.03	0.015	24 hr	0.1	0.05	1 hr	11,50
Oxidants (as O_3)	Canada	Alberta	0.03	0.015	24 hr	0.1	0.05	1 hr	
Oxidants (as O_3)	Canada	Manitoba	0.02	0.01	1 yr	-	-	-	11

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

	Location		Long Term[16]			Short Term[16]			
Substance	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	Foot-notes
Oxidants (as O_3)	Canada	Manitoba	0.05	0.025	24 hr	0.16	0.08	1 hr	49
Oxidants (as O_3)	Canada	Manitoba	0.03	0.015	1 yr	-	-	-	49
Oxidants (as O_3)	Canada	Manitoba	0.02	0.01	1 yr	-	-	-	11
Oxidants (as O_3)	Canada	Newfound-land	0.065	0.03	24 hr	0.21	0.1	1 hr	
Oxidants (as O_3)	Canada	Ontario	0.06	0.03	24 hr	0.2	0.1	1 hr	11
Oxidants (as O_3)	Israel		0.2	0.1	8 hr	0.4	0.2	30 min	51
Oxidants (as O_3)	Romania		0.03	0.015	24 hr	0.01	0.005	30 min	
Oxidants (as O_3)	United States		-	-	-	0.16	0.08	1 hr	13,37
PENTANE	Bulgaria		25.0	8.5	24 hr	100.0	33.9	20 min	2
Pentane	East Germany		25.0	8.5	24 hr	100.0	33.9	30 min	3,4
Pentane	USSR		25.0	8.5	24 hr	100.0	33.9	30 min	6
Pentane	Yugoslavia		25.0	8.5	24 hr	100.0	33.9	20 min	
PERCHLORETHYLENE	West Germany (VDI 2306)		35.0	5.0	30 min	110.0	15.0	30 min	2,7,9

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
PHENOL	Bulgaria		0.01	0.0026	24 hr	0.01	0.0026	20 min	
Phenol	Czechoslovakia		0.1	0.026	24 hr	0.3	0.079	30 min	
Phenol	East Germany		0.01	0.0026	24 hr	0.03	0.0079	30 min	3,4
Phenol	Hungary		0.2	0.052	24 hr	0.6	0.16	30 min	
Phenol	Hungary		0.01	0.026	24 hr	0.01	0.026	30 min	53
Phenol	Israel		0.1	0.025	24 hr	0.3	0.075	30 min	10
Phenol	Poland		0.01	0.0026	24 hr	0.02	0.052	20 min	15
Phenol	Poland		0.003	0.0008	24 hr	0.01	0.026	20 min	29
Phenol	Romania		0.03	0.0079	24 hr	0.1	0.026	30 min	
Phenol	USSR		0.01	0.0026	24 hr	0.001	0.0025	20 min	6
Phenol	West Germany (VDI 2306)		0.2	0.05	30 min	0.6	0.15	30 min	2,7,9
Phenol	Yugoslavia		0.01	0.026	24 hr	0.01	0.026	30 min	
PHOSPHORIC ACID	Romania		0.1	-	24 hr	0.3	-	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
PHOSPHORIC ANHYDRIDE	East Germany		0.05	0.0085	24 hr	0.15	0.026	30 min	3,4
Phosphoric Anhydride	Israel		0.1	0.017	24 hr	0.05	0.0085	30 min	10
PHOSPHOUS PENTOXIDE	USSR		0.05	0.0085	24 hr	0.15	0.026	30 min	6
Phosphous Pentoxide	Yugoslavia		0.05	0.0085	24 hr	0.15	0.026	30 min	
PHTHALIC ANHYDRIDE	Bulgaria		0.2	0.03	24 hr	0.1	0.015	20 min	
Phthalic Anhydride	East Germany		0.03	0.005	24 hr	0.1	0.015	30 min	3,4
Phthalic Anhydride (fumes, aerosols)	USSR		0.1	0.015	24 hr	0.1	0.015	30 min	6
Phthalic Anhydride	Yugoslavia		0.2	0.03	24 hr	0.4	0.06	30 min	
PROPANE-2-ol	USSR		0.6	-	24 hr	0.6	-	30 min	6
PROPANOL	Bulgaria		-	-	-	0.3	0.12	20 min	
Propanol	East Germany		0.3	0.12	24 hr	1.0	0.36	30 min	3,4
Propanol	USSR		0.3	0.12	24 hr	0.3	0.12	30 min	6

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Propanol	**West Germany (VDI 2306)**		50.0	20.0	30 min	150.0	60.0	30 min	2,7,9
Propanol	**Yugoslavia**		0.3	0.12	24 hr	0.3	0.12	30 min	6
PROPYL-ISOBENZENE HYDROXIDE	**Yugoslavia**		0.007	-	24 hr	0.007	-	30 min	
PROPYLENE	**Bulgaria**		3.0	1.5	24 hr	3.0	1.5	20 min	
Propylene	**East Germany**		2.0	1.0	24 hr	3.0	1.5	30 min	3,4
Propylene	**USSR**		3.0	1.5	24 hr	3.0	1.5	30 min	6
PYRIDINE	**Bulgaria**		0.08	0.023	24 hr	0.08	0.023	20 min	2
Pyridine	**East Germany**		0.03	0.009	24 hr	0.08	0.023	30 min	3,4
Pyridine	**Romania**		0.05	0.014	24 hr	0.15	0.04	30 min	
Pyridine	**USSR**		0.08	0.023	24 hr	0.08	0.023	30 min	6
Pyridine	**West Germany (VDI 2306)**		0.7	0.2	30 min	2.1	0.6	30 min	2,7,9
Pyridine	**Yugoslavia**		0.08	0.023	24 hr	0.08	0.023	30 min	
SILICA OXIDE	**Italy**		0.02	-	24 hr	0.1	-	2 hr	19

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
SOOT	Bulgaria		0.05	-	24 hr	0.15	-	20 min	
Soot	Czechoslovakia		0.05	-	24 hr	0.15	-	30 min	
Soot	East Germany		0.05	-	24 hr	0.15	-	30 min	3,4
Soot	Hungary		0.1	-	24 hr	-	-	-	
Soot	Hungary		0.05	-	24 hr	-	-	-	53
Soot	Israel		0.1	-	24 hr	0.3	-	30 min	10
Soot	Romania		0.05	-	24 hr	0.15	-	30 min	
Soot	USSR		0.05	-	24 hr	0.15	-	30 min	6
STYRENE	Bulgaria		0.003	0.0007	24 hr	0.003	0.0007	20 min	
Styrene	East Germany		0.003	0.0007	24 hr	0.01	0.0023	30 min	3,4
Styrene	Hungary		20.0	4.6	24 hr	50.0	11.7	30 min	
Styrene	Hungary		0.003	0.0007	24 hr	0.003	0.0007	30 min	53
Styrene	USSR		0.003	0.0007	24 hr	0.003	0.0007	30 min	6

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

	Location		Long Term[16]			Short Term[16]			
Substance	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	Foot-notes
Styrene	West Germany (VDI 2306)		20.0	4.6	30 min	65.0	15.16	30 min	2,7,9
Styrene	Yugoslavia		0.003	0.0007	24 hr	0.003	0.0007	30 min	
SULFUR DIOXIDE	Argentina		0.07	0.03	30 days	-	-	-	
Sulfur Dioxide	Belgium		0.15	0.06	1 yr	-	-	-	15
Sulfur Dioxide	Brazil	Santo André	0.05	0.02	24 hr	-	-	-	55
Sulfur Dioxide	Bulgaria		0.05	0.02	24 hr	0.5	0.2	20 min	
Sulfur Dioxide	Canada		0.06	0.02	1 yr	-	-	-	49,50
Sulfur Dioxide	Canada		0.03	0.11	24 hr	0.9	0.34	1 hr	49,50
Sulfur Dioxide	Canada		0.03	0.01	1 yr	-	-	-	11,50
Sulfur Dioxide	Canada		0.15	0.06	24 hr	0.45	0.17	1 hr	11,50
Sulfur Dioxide	Canada	Alberta	0.03	0.01	1 yr	-	-	-	
Sulfur Dioxide	Canada	Alberta	0.15	0.06	24 hr	0.45	0.17	1 hr	11,50
Sulfur Dioxide	Canada	Alberta	-	-	-	0.525	0.2	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Sulfur Dioxide	Canada	Manitoba	0.06	0.02	1 yr	-	-	-	49
Sulfur Dioxide	Canada	Manitoba	0.3	0.11	24 hr	0.9	0.34	1 hr	49
Sulfur Dioxide	Canada	Manitoba	0.03	0.01	1 yr	-	-	-	11
Sulfur Dioxide	Canada	Manitoba	0.15	0.06	24 hr	0.45	0.17	1 hr	11
Sulfur Dioxide	Canada	Montreal	0.06	0.02	1 yr	-	-	-	
Sulfur Dioxide	Canada	Newfoundland	0.06	0.02	1 yr	-	-	-	
Sulfur Dioxide	Canada	Newfound land	0.29	0.10	24 hr	0.73	0.25	1 hr	
Sulfur Dioxide	Canada	Ontario	0.06	0.02	1 yr	-	-	-	11
Sulfur Dioxide	Canada	Ontario	0.29	0.10	24 hr	0.73	0.25	1 hr	11
Sulfur Dioxide	Canada	Saskatchewan	0.2	0.08	24 hr	1.0	0.4	1 hr	
Sulfur Dioxide	Colombia		0.07	0.03	1 yr	-	-	-	56
Sulfur Dioxide	Czechoslovakia		0.15	0.06	24 hr	0.5	0.2	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Sulfur Dioxide	East Germany		0.15	0.06	24 hr	0.5	0.2	30 min	3,4
Sulfur Dioxide	Finland		0.25	0.1	24 hr	0.72	0.28	30 min	17
Sulfur Dioxide	Finland		0.18	0.07	1 yr	-	-	-	
Sulfur Dioxide	France		1.0	0.38	24 hr	-	-	-	
Sulfur Dioxide	France	Paris	0.75	0.29	24 hr	-	-	-	40
Sulfur Dioxide	Hungary		0.5	0.2	24 hr	1.0	0.38	30 min	
Sulfur Dioxide	Hungary		0.15	0.06	24 hr	0.5	0.2	30 min	53
Sulfur Dioxide	Israel		0.26	0.1	24 hr	0.78	0.3	30 min	51
Sulfur Dioxide	Italy		0.38	0.15	24 hr	0.75	0.3	30 min	19
Sulfur Dioxide	Japan		0.1	0.04	24 hr	0.26	0.1	1 hr	41
Sulfur Dioxide	Netherland		0.075	0.03	24 hr	-	-	-	21,22
Sulfur Dioxide	Netherland		0.25	0.1	24 hr	-	-	-	21,23
Sulfur Dioxide	Netherland		0.15	0.06	24 hr	-	-	-	24,28

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Sulfur Dioxide	Netherland		0.35	0.13	24 hr	-	-	-	25,28
Sulfur Dioxide	Netherland		0.125	0.05	24 hr	-	-	-	26,28
Sulfur Dioxide	Netherland		0.275	0.1	24 hr	-	-	-	27,28
Sulfur Dioxide	Poland		0.35	0.13	24 hr	0.9	0.35	20 min	15
Sulfur Dioxide	Poland		0.075	0.03	24 hr	0.25	0.1	20 min	29
Sulfur Dioxide	Romania		0.25	0.1	24 hr	0.75	0.3	20 min	
Sulfur Dioxide	Spain		0.4	0.15	24 hr	0.8	0.3	30 min	18
Sulfur Dioxide	Spain		0.256	0.1	30 days	-	-	-	18
Sulfur Dioxide	Spain		0.15	0.06	1 yr	-	-	-	18
Sulfur Dioxide	Sweden		0.25	0.1	24 hr	0.625	0.25	30 min	30
Sulfur Dioxide	Sweden		0.125	0.05	30 days	-	-	-	30
Sulfur Dioxide	Switzerland		0.5	0.2	24 hr	0.75	0.3	30 min	31
Sulfur Dioxide	Switzerland		0.75	0.3	24 hr	1.25	0.5	30 min	32

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Sulfur Dioxide	Turkey		0.15	0.06	24 hr	-	-	-	33,34
Sulfur Dioxide	Turkey		0.30	0.12	24 hr	-	-	-	33,35
Sulfur Dioxide	USSR		0.05	0.02	24 hr	0.5	0.2	30 min	6
Sulfur Dioxide	United States		0.08	0.03	1 yr	-	-	-	36
Sulfur Dioxide	United States		0.365	0.14	24 hr	-	-	-	36,37
Sulfur Dioxide	United States		1.3	0.5	3 hr	-	-	-	37,38
Sulfur Dioxide	West Germany (VDI 2108)		0.5	0.2	30 min	0.75	0.3	30 min	2,7,47
Sulfur Dioxide	West Germany		0.4	0.15	30 min	0.75	0.3	30 min	2
Sulfur Dioxide	West Germany		0.15	0.06	24 hr	0.5	0.2	30 min	2,54
Sulfur Dioxide	Yugoslavia		0.15	0.06	24 hr	0.5	0.2	30 min	
SULFURIC ACID	East Germany		0.02	-	24 hr	0.05	-	30 min	3,4
Sulfuric Acid	Hungary		0.1	-	24 hr	0.3	-	30 min	
Sulfuric Acid	Hungary		0.1	-	24 hr	0.3	-	30 min	53

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Sulfuric Acid	**Israel**		0.1	-	24 hr	0.3	-	30 min	10
Sulfuric Acid	**Poland**		0.1	-	24 hr	0.3	-	20 min	15
Sulfuric Acid	**Poland**		0.05	-	24 hr	0.15	-	20 min	29
Sulfuric Acid (as H+)	**Bulgaria**		0.006	-	24 hr	0.006	-	20 min	
Sulfuric Acid (as H+)	**Czechoslovakia**		-	-	-	0.01	-	30 min	
Sulfuric Acid (as H+)	**USSR**		0.002	-	24 hr	0.006	-	30 min	6
Sulfuric Acid (as H+)	**Yugoslavia**		0.006	-	24 hr	0.006	-	30 min	
Sulfuric Acid (as H_2SO_4)	**Bulgaria**		0.1	-	24 hr	0.3	-	20 min	
Sulfuric Acid (as H_2SO_4)	**Romania**		0.1	-	24 hr	0.3	-	30 min	
Sulfuric Acid (as H_2SO_4)	**USSR**		0.1		24 hr	0.3	-	30 min	6
Sulfuric Acid (as H_2SO_4)	**Yugoslavia**		0.1	-	24 hr	0.3	-	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
SUSPENDED PARTICULATE MATTER	Argentina		0.15	-	30 days	-	-	-	16
Suspended Particulate Matter	Bulgaria		0.15	-	24 hr	0.5	-	20 min	
Suspended Particulate Matter	Canada		0.07	-	1 yr	-	-	-	5,49 50
Suspended Particulate Matter	Canada		0.12	-	24 hr	-	-	-	
Suspended Particulate Matter	Canada		0.06	-	1 yr	-	-	-	5,11 50
Suspended Particulate Matter	Canada	Alberta	0.06	-	1 yr	-	-	-	5
Suspended Particulate Matter	Canada	Alberta	0.1	-	24 hr	-	-	-	
Suspended Particulate Matter	Canada	Montreal	0.8	-	1 yr	-	-	-	
Suspended Particulate Matter	Canada	Montreal	0.25	-	24 hr	-	-	-	
Suspended Particulate Matter	Canada	Manitoba	0.07	-	1 yr	-	-	-	5,49
Suspended Particulate Matter	Canada	Manitoba	0.12	-	24 hr	-	-	-	
Suspended Particulate Matter	Canada	Manitoba	0.06	-	1 yr	-	-	-	5,11

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Suspended Particulate Matter	Canada	Manitoba	0.1	-	24 hr	-	-	-	
Suspended Particulate Matter	Canada	Newfoundland	0.7	-	1 yr	-	-	-	
Suspended Particulate Matter	Canada	Newfoundland	0.12	-	24 hr	-	-	-	
Suspended Particulate Matter	Canada	Ontario	0.06	-	1 yr	-	-	-	5,11
Suspended Particulate Matter	Canada	Ontario	0.09	-	24 hr	-	-	-	
Suspended Particulate Matter	Canada	Saskatchewan	0.15	-	24 hr	-	-	-	48
Suspended Particulate Matter	Columbia		0.1	-	24 hr	-	-	-	56
Suspended Particulate Matter	Czechoslovakia		0.15	-	24 hr	0.5	-	30 min	
Suspended Particulate Matter	East Germany		0.15	-	24 hr	0.5	-	30 min	3,4
Suspended Particulate Matter	Finland		0.15	-	24 hr	0.5	-	30 min	17
Suspended Particulate Matter	France	Paris	0.06	-	1 yr	-	-	-	40

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Suspended Particulate Matter	France	Paris	0.35	-	24 hr	-	-	-	40
Suspended Particulate Matter	Hungary		0.2	-	24 hr	-	-	-	
Suspended Particulate Matter	Hungary		0.15	-	24 hr	-	-	-	53
Suspended Particulate Matter	Israel		0.075	-	1 yr	-	-	-	51
Suspended Particulate Matter	Israel		0.2	-	24 hr	-	-	-	51
Suspended Particulate Matter	Italy		0.3	-	24 hr	0.75	-	2 hr	19
Suspended Particulate Matter	Japan		0.1	-	24 hr	0.2	-	1 hr	41
Suspended Particulate Matter	Poland		0.2	-	24 hr	0.6	-	20 min	15,52
Suspended Particulate Matter	Poland		0.075	-	24 hr	0.2	-	20 min	29,52

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

	Location		Long Term[16]			Short Term[16]			
Substance	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	Foot-notes
Suspended Particulate Matter	Romania		0.15	-	24 hr	0.5	-	30 min	
Suspended Particulate Matter	Spain		0.13	-	1 yr	-	-	-	
Suspended Particulate Matter	Spain		0.202	-	30 days	-	-	-	18
Suspended Particulate Matter	Spain		0.3	-	24 hr	0.6	-	30 min	18
Suspended Particulate Matter	Sweden		-	-	-	0.1	-	1 hr	39
Suspended Particulate Matter	Turkey		0.15	-	24 hr	-	-	-	33,34
Suspended Particulate Matter	United States		0.075	-	1 yr	-	-	-	36
Suspended Particulate Matter	United States		0.26	-	24 hr	-	-	-	
Suspended Particulate Matter	United States		0.06	-	1	-	-	-	38
Suspended Particulate Matter	United States		0.15	-	24 hr				
Suspended Particulate Matter	USSR		0.15	-	24 hr	0.5	-	30 min	6,39

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Suspended Particulate Matter	West Germany		-	-	-	0.48	-	30 min	2,39
Suspended Particulate Matter	West Germany		0.1	-	30 min	0.3	-	30 min	2,54
TAR	Israel		1.0	-	24 hr	3.0	-	30 min	10
TETRACHLOROMETHANE	Bulgaria		-	-	-	4.0	-	20 min	
TETRAHYDROFURAN	East Germany		0.2	-	24 hr	0.6	-	30 min	3,4
Tetrahydrofuran	USSR		0.2	0.07	24 hr	0.2	0.07	30 min	6
Tetrahydrofuran	West Germany (VDI 2306)		30.0	10.0	30 min	90.0	30.0	30 min	2,7,9
THIOPHENE	Bulgaria		-	-	-	0.6	0.17	20 min	
Thiophene	East Germany		0.2	0.06	24 hr	0.6	0.17	30 min	3,4
Thiophene	USSR		-	-	-	0.6	0.17	30 min	6
Thiophene	Yugoslavia		-	-	-	0.6	0.17	30 min	
TOLUENE	Bulgaria		0.6	0.15	24 hr	0.6	0.15	20 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Footnotes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Toluene	East Germany		0.6	0.16	24 hr	0.6	0.5	30 min	3,4
Toluene	Hungary		20.0	5.3	24 hr	50.0	13.3	30 min	
Toluene	Hungary		0.6	0.16	24 hr	0.6	0.16	30 min	53
Toluene	USSR		0.6	0.16	24 hr	0.6	0.16	30 min	6
Toluene	West Germany (VDI 2306)		20.0	5.0	30 min	60.0	15.0	30 min	2,7,9
Toluene	Yugoslavia		0.6	0.16	24 hr	0.6	0.16	20 min	
TOLUENE DI-ISOCYANATE	Bulgaria		0.02	0.0029	24 hr	0.05	0.0071	20 min	
Toluene Di-Isocyanate	East Germany		0.02	0.0029	24 hr	0.05	0.0071	30 min	3,4
Toluene Di-Isocyanate	Romania		0.02	0.0029	24 hr	0.05	0.0071	30 min	
Toluene Di-Isocyanate	USSR		0.02	0.0029	24 hr	0.05	0.0071	30 min	6
Toluene Di-Isocyanate	West Germany (VDI 2306)		0.007	0.001	30 min	0.021	0.003	30 min	2,7,9
Toluene Di-Isocyanate	Yugoslavia		0.02	0.0029	24 hr	0.05	0.0071	30 min	
TRIBUTYL PHOSPHATE	Bulgaria		-	-	-	0.01	-	20 min	
Tributyl Phosphate	USSR		0.01	-	24 hr	0.01	-	30 min	6

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location: Country	Location: City or Province	Long Term[16]: mg/m^3	Long Term[16]: ppm	Long Term[16]: Averaging time	Short Term[16]: mg/m^3	Short Term[16]: ppm	Short Term[16]: Averaging time	Foot-notes
TRICHLORFON (chlorophos)	**USSR**		0.02	-	24 hr	0.04	-	30 min	6
TRICHLOROETHANE	West Germany	(VDI 2306)	30.0	5.0	30 min	90.0	15.0	30 min	2,7,9
TRICHLORETHYLENE	**Bulgaria**		1.0	0.17	24 hr	4.0	0.67	20 min	
Trichlorethylene	East Germany		1.0	0.18	24 hr	4.0	0.74	30 min	3,4
Trichlorethylene	Hungary		30.0	5.6	24 hr	50.0	9.3	30 min	
Trichlorethylene	Hungary		0.2	0.04	24 hr	0.2	0.04	30 min	53
Trichlorethylene	USSR		1.0	0.18	24 hr	4.0	0.74	30 min	6
Trichlorethylene	West Germany	(VDI 2306)	30.0	5.0	30 min	90.0	15.0	30 min	2,7,9
Trichlorethylene	Yugoslavia		1.0	0.18	24 hr	4.0	0.74	30 min	
TRIETHYL AMINE	East Germany		0.05	0.012	24 hr	0.14	0.035	30 min	3,4
Triethyl Amine	USSR		0.14	0.035	24 hr	0.14	0.035	30 min	6
Triethyl Amine	West Germany	(VDI 2306)	0.04	0.01	30 min	0.12	0.03	30 min	2,7,9
2-4-6-TRIMETHYL ANILIN (Mesidiue)	East Germany		0.003	-	24 hr	0.01	-	30 min	3,4

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

	Location		Long Term[16]			Short Term[16]			
Substance	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	Foot-notes
TURPENTINE	West Germany (VDI 2306)		25.0	5.0	30 min	75.0	15.0	30 min	7,8,9
VALERIC ACID (-n)	Bulgaria		0.01	0.003	24 hr	0.03	0.008	20 min	
Valeric Acid (-n)	East Germany		0.01	0.003	24 hr	0.03	0.008	30 min	3,4
Valeric Acid (-n)	USSR		0.01	0.003	24 hr	0.03	0.008	30 min	6
Valeric Acid (-n)	Yugoslavia		0.01	0.003	24 hr	0.03	0.008	30 min	
VANADIUM PENTOXIDE	Bulgaria		0.002	-	24 hr	-	-	-	
Vanadium Pentoxide	Czechoslovakia		0.003	-	24 hr	-	-	-	
Vanadium Pentoxide	East Germany		0.002	-	24 hr	-	-	-	3,4
Vanadium Pentoxide	USSR		0.002	-	24 hr	-	-	-	6
Vanadium Pentoxide	Yugoslavia		0.003	-	24 hr	-	-	-	
VINYL ACETATE	Bulgaria		0.2	0.006	24 hr	0.2	0.006	20 min	
Vinyl Acetate	Czechoslovakia		0.2	0.006	24 hr	0.2	0.006	30 min	
Vinyl Acetate	East Germany		0.15	0.0045	24 hr	0.4	0.012	30 min	3,4
Vinyl Acetate	Israel		4.0	1.0	24 hr	12.0	3.0	30 min	10

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

Substance	Location		Long Term[16]			Short Term[16]			Foot-notes
	Country	City or Province	mg/m^3	ppm	Averaging time	mg/m^3	ppm	Averaging time	
Vinyl Acetate	USSR		0.15	0.0045	24 hr	0.15	0.0045	30 min	6
Vinyl Acetate	West Germany (VDI 2306)		20.0	5.0	30 min	60.0	15.0	30 min	2,7,9
Vinyl Acetate	Yugoslavia		0.2	0.006	24 hr	0.2	0.006	30 min	
XYLENE	Bulgaria		0.2	0.05	24 hr	0.2	0.05	20 min	
Xylene	East Germany		0.2	0.046	24 hr	0.6	0.14	30 min	3,4
Xylene	Hungary		20.0	4.6	24 hr	50.0	11.5	30 min	
Xylene	Hungary		0.2	0.046	24 hr	0.2	-	30 min	53
Xylene	USSR		0.2	0.005	24 hr	0.2	0.05	30 min	6
Xylene	West Germany (VDI 2306)		20.0	5.0	30 min	60.0	15.0	30 min	2,7,9
Xylene	Yugoslavia		0.2	0.46	24 hr	0.2	0.46	30 min	

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

FOOTNOTES

1. Underlined concentration represents the value listed in legislation, others are approximate conversions.

2. West Germany = Federal Republic of Germany.

3. East Germany = Democratic Republic of Germany.

4. Permissible standard, averaging time is defined as 10-30 minutes.

5. Annual mean = annual geometric mean.

6. USSR =Union of Soviet Socialist Republics

   A. If several substances with synergistic toxic properties are present in the air, the maximum permissible concentration (MPC) of the mixture is calculated from the following formula:

$$X = \frac{A}{M_1} + \frac{B}{M_2} + \frac{C}{M_3} \qquad (1)$$

   where X is the (relative) MPC; A,B,C, are the concentrations of the substances in the mixture and M_1, M_2, M_3, their respective maximum permissible concentrations.

   B. If formula (1) is applied to the following two, three or four component systems, the value X: should not exceed 1.0 for

      (a) acetone and phenol
      (b) SO_2 and phenol
      (c) SO_2 and NO_2
      (d) SO_2 and HF
      (e) SO_2 and sulfuric acid aerosol
      (f) H_2S and "dinyl"
      (g) isopropyl benzene and isopropyl benzene hydroperoxide
      (h) furfural, methanol, and ethanol
      (i) strong mineral acids (sulfuric, hydrochloric, and nitric, concentrations expressed as H+)
      (j) ethylene, propylene, butylene and amylene

   should not exceed 1.3 for

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

FOOTNOTES

acetic acid and acetic anhydride

should not exceed 1.5 for

(a) acetone and acetophenone
(b) benzene and acetophenene
(c) phenol and acetophenone

C. If (a) H_2S and CS_2, (b) CO and SO_2, (c) phthalic anhydride, maleic anhydride and α-naphthoquinone are present in the mixture, the MPC values of individual substances should not be exceeded.

D. If ρ-chlorophenyl isocyanate is present together with m-chlorophenyl isocyanate the MPC is determined by the presence of the more toxic substance i.e., of ρ-chlorophenyl isocyanate.

7. VDI = Verein Deutscher Ingenieure - Kommission Reinhaltung der Luft, VDI - Verlag GmbH, Duesseldorf, Federal Republic of Germany.

8. Short term standard = short term exposure limit, not to be exceeded more than once in any 8 hrs.

9. Short term = Short term exposure limit, not to be exceeded more than once in any 4 hrs.

10. Tentative standards.

11. Criteria for desirable ambient air quality.

12. Also the inorganic compounds, except arsine AsH_3

13. Primary and secondary ambient air quality standard.

14. In regulations listed as gasoline (< 10% aromatics).

15. For protection areas.

16. The terms "Short Term" and "Long Term", if not otherwise stated, reflect only short or long averaging times.

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

FOOTNOTES

17. Not national legal norms, communal health councils can enforce them.

18. Proposed standards.

19. Once in 8 hrs.

20. 0.6 mg/m^3 just once during a 30 min. average in a time period of 8 hrs.

21. Nationwide standard with low smoke level.

22. Percentile of the cumulative frequency distribution of consecutive 24 hr. sample: 50%.

23. Percentile of the cumulative frequent distribution of consecutive 24 hr. sample 38%.

24. Soot level <0.03 mg/m^3, frequency 50%.

25. Soot level <0.09 mg/m^3, frequency 98%.

26. Soot level <0.04 mg/m^3, frequency 50%.

27. Soot level <0.125 mg/m^3, frequency 98%.

28. Transitory limit value.

29. Special protection areas.

30. As guideline.

31. During summer March 1 - October 31, Guideline.

32. During winter November 1 - February 28/29, Guideline.

33. Recommended, but not adopted standard.

34. Residential areas.

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

FOOTNOTES

35. Industrial areas.

36. Primary ambient air quality standard.

37. Not to be exceeded more than once a year.

38. Secondary standard.

39. Basis for stack height calculation.

40. Special zone in Paris.

41. Average of hourly means for 24 hrs. value.

42. AlF_3, $NaAlF_6$, CaF_2.

43. HF, SiF_4.

44. NaF, Na_2SiF_6.

45. Lead and its compounds, except tetraethyl lead.

46. For mixing with animal feed.

47. Short term standard not to be exceeded more than once in 2 hours.

48. Provisional Maximum Quantities, 1970.

49. Maximum acceptable level.

50. Proposed National Air Quality Objectives.

51. National Air Quality Standard.

52. Particle size <20 μm.

Table 2 (continued). AMBIENT AIR QUALITY STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

FOOTNOTES

53. Highly protected and protected areas.

54. Proposed Federal Standard (stations of October, 1973).

55. Municipal Law.

56. Reference Level, set by PAHO and adopted by Colombia.

57. As Hexane, for Hydrocarbons emitted by oil refineries

Table 3. POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Ammonia	Canada	Manitoba		5.0	30 mins.	
Ammonia	Canada	Ontario		5.0	30 mins.	
Ammonia	Philippines			20.0	1 hr.	
Ammonia	Philippines			10.0	24 hrs.	
Arsenic	Yugoslavia	Serbia	0.003 mg/m^3		24 hrs.	20
Beryllium	Canada	Manitoba	0.01 ug/m^3		30 mins.	
Beryllium	Canada	Ontario	0.01 ug/m^3		30 mins.	
Bromine	Canada	Ontario		0.01	30 mins.	
Cadmium Oxide	Canada	Ontario	10.0 μg/m^3		30 mins.	
Carbon Bisulfide	Canada	Manitoba		0.15	30 mins.	
Carbon Bisulfide	Canada	Ontario		0.15	30 mins.	
Carbon Bisulfide	Yugoslavia	Serbia	0.01 mg/m^3	0.003	24 hrs.	
Carbon Bisulfide	Yugoslavia	Serbia	0.03 mg/m^3	0.009	30 mins.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Carbon Monoxide	Canada	Manitoba		5.0	30 mins.	
Carbon Monoxide	Canada	Newfoundland	μg/m^3	5.0	30 mins.	23
Carbon Monoxide	Canada	Ontario		5.0	30 mins.	
Carbon Monoxide	France			50.0	8 hrs.	25
Carbon Monoxide	France			100.0	peak	25
Carbon Monoxide	Italy		57.24 mg/m^3	50.0	30 mins.	15
Carbon Monoxide	Italy		22.89 mg/m^3	20.0	8 hr.	
Carbon Monoxide	Philippines			100.0	1 hr.	
Carbon Monoxide	Philippines			30.0	24 hrs.	
Carbon Monoxide	Yugoslavia	Serbia	1.0 mg/m^3	0.9	24 hrs.	
Carbon Monoxide	Yugoslavia	Serbia	3.0 mg/m^3	2.7	30 mins.	22
Chlorine	Canada	British Columbia		0.10	24 hrs.	1
Chlorine	Canada	Manitoba		0.10	30 mins.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Chlorine	Canada	Newfoundland	320.0 $\mu g/m^3$	0.10	30 mins.	23
Chlorine	Canada	Ontario		0.10	30 mins.	
Chlorine	Canada	Saskatchewan	300.0 $\mu g/m^3$	0.10	60 mins.	
Chlorine	Canada	Saskatchewan	30.0 $\mu g/m^3$	0.01	24 hrs.	
Chlorine	Italy		0.58 mg/m^3	0.20	30 mins.	15
Chlorine	Philippines			1.0	1 hr.	
Chlorine	Philippines			0.20	24 hrs.	
Chlorine Dioxide	Canada	British Columbia		0.10	24 hrs.	1
Dustfall	Canada	British Columbia	15 $tons/mi^2/mo$		2 weeks	2
Dustfall	Canada	British Columbia	20 $tons/mi^2/mo$		2 weeks	3
Dustfall	Canada	Manitoba	15 $tons/mi^2/mo$		1 month	
Dustfall	Canada	Newfoundland	5.25 g/m^2		30 days	4,23
Dustfall	Canada	Ontario	15 $tons/mi^2$		30 days	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Dustfall	Canada	Saskatchewan	2.0 mg/cm^2		30 days	
Dustfall	Yugoslavia	Serbia	300 mg/m^2		24 hrs.	
Ethylene	Philippines			5.0	1 hr.	
Ethylene	Philippines			0.20	24 hrs.	
Fluorides	Canada	Manitoba		0.005	30 mins.	5
Fluorides	Canada	Newfoundland	4.5 $\mu g/m^3$	0.005	30 mins.	5,23
Fluorides	Canada	Newfoundland	1.8 $\mu g/m^3$	0.002	24 hrs.	5,23
Fluorides	Canada	Ontario		0.005	30 mins.	
Fluorides	Canada	Saskatchewan	3.0 $\mu g/m^3$	0.004	24 hrs.	5
Fluorides	Italy		4.5 ug/m^3	0.006	30 mins.	15
Fluorides	Italy		0.02 mg/m^3	0.026	24 hrs.	
Hydrocarbons	Yugoslavia	Serbia	0.125 mg/m^3		30 mins.	19,22
Hydrogen Chloride	Canada	Manitoba		0.04	30 mins.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Hydrogen Chloride	Canada	Newfoundland	65.0 $\mu g/m^3$	0.04	30 mins.	23
Hydrogen Chloride	Canada	Ontario		0.04	30 mins.	
Hydrogen Chloride	Italy		0.30 mg/m^3	0.20	30 mins.	15
Hydrogen Chloride	Italy		0.05 mg/m^3	0.003	24 hrs.	
Hydrogen Chloride	Philippines			1.0	1 hr.	
Hydrogen Chloride	Philippines			0.50	24 hrs.	
Hydrogen Cyanide	Canada	Ontario		1.0	30 mins.	
Hydrogen Fluoride	Yugoslavia	Serbia	0.005 mg/m^3	0.0075	24 hrs.	
Hydrogen Fluoride	Yugoslavia	Serbia	0.02 mg/m^3	0.03	30 mins.	22
Hydrogen Sulfide	Canada	Manitoba		0.03	30 mins.	
Hydrogen Sulfide	Canada	Newfoundland	30.0 $\mu g/m^3$	0.02	30 mins.	23
Hydrogen Sulfide	Canada	Ontario		0.03	30 mins.	
Hydrogen Sulfide	Canada	Saskatchewan	70.0 $\mu g/m^3$	0.05	60 mins.	
Hydrogen Sulfide	Canada	Saskatchewan	7.0 $\mu g/m^3$	0.005	24 hrs.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Hydrogen Sulfide	Italy		0.10 mg/m^3	0.07	30 mins.	15
Hydrogen Sulfide	Italy		0.04 mg/m^3	0.03	24 hrs.	
Hydrogen Sulfide	Philippines			0.20	1 hr.	
Hydrogen Sulfide	Philippines			0.10	24 hrs.	
Iron	Canada	Newfoundland	10.0 μg/m^3		30 mins.	23
Iron	Canada	Ontario	10.0 μg/m^3		30 mins.	
Lead	Canada	Manitoba	20.0 μg/m^3		30 mins.	
Lead	Canada	Newfoundland	20.0 μg/m^3		30 mins.	23
Lead	Canada	Ontario	20.0 μg/m^3		30 mins.	
Lead	Italy		0.05 mg/m^3		30 mins.	15
Lead	Italy		0.01 mg/m^3		8 hrs.	
Lead	Yugoslavia	Serbia	0.0007 mg/m^3		24 hrs.	
Lead Sulfide	Yugoslavia	Serbia	0.0017 mg/m^3		24 hrs.	
Lime	Canada	Manitoba	20.0 μg/m^3		30 mins.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Lime	Canada	Newfoundland	20.0 $\mu g/m^3$		30 mins.	6,23
Lime	Canada	Ontario	20.0 $\mu g/m^3$		30 mins.	
Lime	Philippines	Residential Area	20.0 $\mu g/m^3$		30 mins.	18
Nitric Acid	Canada	Newfoundland	65.0 $\mu g/m^3$		30 mins.	23
Nitric Acid	Canada	Ontario	65.0 $\mu g/m^3$		30 mins.	
Nitrogen Dioxide	Canada	Saskatchewan	40.0 $\mu g/m^3$	0.02	60 mins.	
Nitrogen Dioxide	Canada	Saskatchewan	20.0 $\mu g/m^3$	0.01	24 hrs.	
Nitrogen Dioxide	Italy		0.56 mg/m^3	0.30	30 mins.	15
Nitrogen Dioxide	Italy		0.19 mg/m^3	0.10	24 hrs.	
Nitrogen Dioxide	Yugoslavia	Serbia	0.085 mg/m^3	0.047	24 hrs.	
Nitrogen Dioxide	Yugoslavia	Serbia	0.085 mg/m^3	0.047	30 mins.	22
Nitrogen Oxides	Canada	Newfoundland	510.0 $\mu g/m^3$	0.25	30 mins.	7,23
Nitrogen Oxides	Canada	Ontario		0.25	30 mins.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Nitrogen Oxides	France		200.0 mg/m^3		24 hrs.	24
Nitrogen Oxides	Philippines			2.0	1 hr.	
Nitrogen Oxides	Philippines			0.30	24 hrs.	
Organic Substances	Italy			80.0	30 mins.	16
Organic Substances	Italy			40.0	24 hrs.	
Oxidant	Yugoslavia	Serbia	0.125 mg/m^3		30 mins.	22
Ozone	Philippines			0.30	1 hr.	
Ozone	Philippines			0.10	24 hrs.	
Potash	Canada	Saskatchewan	0.3 mg/cm^2		30 days	8
Silica (Free)	Italy		0.10 mg/m^3		120 mins.	15,17
Silica (Free)	Italy		0.02 mg/m^3		24 hrs.	17
Silver	Canada	Ontario	1.0 $\mu g/m^3$		30 mins.	
Soiling Index	Canada	Saskatchewan	1.5 c.o.h. units		24 hrs.	
Soot	Yugoslavia	Serbia	0.05 mg/m^3		24 hrs.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Soot	Yugoslavia	Serbia	0.15 mg/m^3		30 mins.	22
Sulfur Dioxide	Canada	British Columbia		0.20	24 hrs.	9
Sulfur Dioxide	Canada	British Columbia		0.30	24 hrs.	10
Sulfur Dioxide	Canada	British Columbia		0.50	24 hrs.	11
Sulfur Dioxide	Canada	Manitoba		0.30	30 mins.	
Sulfur Dioxide	Canada	Newfoundland	880.0 $\mu g/m^3$	0.30	30 mins.	23
Sulfur Dioxide	Canada	Ontario		0.30	30 mins.	
Sulfur Dioxide	Canada	Saskatchewan	1000.0 $\mu g/m^3$	0.40	60 mins.	
Sulfur Dioxide	Canada	Saskatchewan	200.0 $\mu g/m^3$	0.08	24 hrs.	
Sulfur Dioxide	Canada	Saskatchewan	4.0 $mg/100\ cm^2$		30 days	12
Sulfur Dioxide	France		250.0 $\mu g/m^3$	0.096	24 hrs.	24
Sulfur Dioxide	Italy		0.79 mg/m^3	0.30	30 mins.	15
Sulfur Dioxide	Italy		0.39 mg/m^3	0.15	24 hrs.	

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Footnotes
	Country	Province or City	Original Units	ppm	Averaging Time	
Sulfur Dioxide	Philippines			2.0	1 hr.	
Sulfur Dioxide	Philippines			0.30	24 hrs.	
Sulfur Dioxide	Yugoslavia	Serbia	0.15 mg/m^3	0.058	24 hrs.	
Sulfur Dioxide	Yugoslavia	Serbia	0.50 mg/m^3	0.19	30 mins.	22
Suspended Particulate Matter	Canada	Manitoba	100.0 $\mu g/m^3$		30 mins.	
Suspended Particulate Matter	Canada	Newfoundland	100.0 $\mu g/m^3$		30 mins.	23
Suspended Particulate Matter	Canada	Ontario	100.0 $\mu g/m^3$		30 mins.	14
Suspended Particulate Matter	Canada	Saskatchewan	150.0 $\mu g/m^3$		24 hrs.	13
Suspended Particulate Matter	France		150.0 $u g/m^3$		24 hrs.	24
Suspended Particulate Matter	Italy		0.75 mg/m^3		120 mins.	15

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[28]

Substance	Location		Standard			Foot-notes
	Country	Province or City	Original Units	ppm	Averaging Time	
Suspended Particulate Matter	Italy		0.30 mg/m^3		24 hrs.	
Suspended Particulate Matter	Philippines		900.0 $\mu g/m^3$		1 hr.	26
Suspended Particulate Matter	Philippines		300.0 $\mu g/m^3$		24 hrs.	26
Suspended Particulate Matter	Philippines		600.0 $\mu g/m^3$		1 hr.	27
Suspended Particulate Matter	Philippines		200.0 $\mu g/m^3$		24 hrs.	27

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

FOOTNOTES

1. As Cl_2

2. Objective Level B for Wood Waste Burners - Measured at property line (level to which existing installation should be upgraded).

3. Objective Level C for Wood Waste Burners - Measured at property line (existing installations).

4. Equivalent to 15 tons/mi^2/month.

5. As HF.

6. As CaO.

7. As NO_2.

8. As KCl.

9. Objective Level A for sulfite pulp mills (new or proposed installations).

10. Objective Level B for sulfite pulp mills (level to which existing installation should be upgraded).

11. Objective Level C for sulfite pulp mills (existing installations).

12. Lead Peroxide Candle (DSIR).

13. High Volume Sampler.

14. Also the specific limit for permanent asphalt paving plants unless lower concentration in μg/m^3 is calculated by:

$$(100) \quad \frac{(\text{Tons/hr operating rate}) \text{ X } (\text{\% of material passing 200 mesh sieve})}{(\text{Actual design rate of dryer for 5\% moisture content material})}$$

Table 3 (continued). POINT OF IMPINGEMENT AT GROUND LEVEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

FOOTNOTES (continued)

15. Peak concentration allowable once in eight hours.

16. As hexane - derived from refineries.

17. As SiO_2.

18. Also commercial areas.

19. As CH_4.

20. As the metal.

21. Ash and inert dust.

22. Designated "short term" - assumed to be 30 mins.

23. Proposed. ppm are "approximate equivalents" of gravimetric standard.

24. Basis for stack height calculations.

25. Underground parking lots.

26. Industrial area.

27. Residential area.

28. Although these standards have the form of air quality standards, they are standards limiting emission from a source to an amount that will not allow the limits in this table to be exceeded at ground level, usually beyond the property line of the source.

TABLE 4
FLUORIDES IN FORAGE STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Country	Province	Standard
Canada	New Foundland	35 ppm (by wt.) individual sample
	Manitoba	35 ppm individual sample
	Ontario	35 ppm
	Manitoba	40 $\mu g/100\ cm^2$ (30 days)
	Ontario	40 $\mu g/100\ cm^2$ (30 days)

TABLE 5. DEPOSITED PARTICULATE MATTER STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Location					
Country	City or Province	Land Use	Original Units	Tons/sq mile/month	Footnotes
Argentina			1.0 mg/cm^2/month		
Canada	Alberta	Residential and recreational area	53.0 mg/100cm^2/month		
Canada	Alberta	Commercial and industrial areas	158.0 mg/100cm^2/month		
Canada	Manitoba	Air basin, avg. 1 month	0.8 mg/cm^2/month		5
Canada	Manitoba	Air basin, avg. 1 month	0.6 mg/cm^2/month		6
Canada	Manitoba	Single point over 1 month	1.5 mg/cm^2/month		5
Canada	Manitoba	Single point over 1 month	1.1 mg/cm^2/month		6
Canada	Newfoundland		7.0 g/m^2/month	20.0	
Canada	Newfoundland		4.6 g/m^2/year	13.0	1
Canada	Ontario		tons/sq mile/month	20.0	
Canada	Ontario		tons/sq mile/year	13.0	1
Canada	Saskatchewan		2.0 mg/cm^2/month		

TABLE 5 (CONTINUED). DEPOSITED PARTICULATE MATTER STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Location					
Country	City or Province	Land Use	Original Units	Tons/sq mile/month	Footnotes
Colombia			0.5 mg/cm^2/month		9
Finland					
Lead			10.0 mg/m^2/month		
Chromium			10.0 mg/m^2/month		
Vanadium			10.0 mg/m^2/month		
Total			10.0 g/m^2/month		
Hungary			200.0 tons/km^2/year		
Hungary		Protected areas	150.0 tons/km^2/year		
Poland		Protected areas	250.0 tons/km^2/year	48.0	
Poland		Special protected areas	40.0 tons/km^2/year	8.0	
Poland		Special protected areas	6.5 tons/km^2/month	15.0	
Romania			200.0 tons/km^2/year		
Spain			200.0 mg/m^2/day		2
West Germany		General	0.42 g/m^2/day		3,4

TABLE 5 (CONTINUED). DEPOSITED PARTICULATE MATTER STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Location					
Country	City or Province	Land Use	Original Units	Tons/sq mile/month	Footnotes
West Germany		General	0.65 g/m^2/month		4
West Germany		Industrial	0.85 g/m^2/day		3,4
West Germany		Industrial	1.3 g/m^2/month		4
West Germany			0.35 g/m^2/day		3,8
West Germany			0.65 g/m^2/day		7,8

TABLE 5 (CONTINUED). DEPOSITED PARTICULATE MATTER STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

FOOTNOTES

1 - Based on monthly averages.

2 - Proposed standard.

3 - Yearly average of the 12 monthly averages.

4 - Measured by Bergerhoff method, described in VDI guideline 2119.

5 - Max. acceptable level.

6 - Max. desirable level.

7 - Monthly average.

8 - Proposed Federal Standards (status of October, 1973).

9 - Set by PAHO and adopted by Colombia

TABLE 6. SOILING INDEX AND SULFATION STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Location		Soiling Index COH*/1000 ft of Air		Sulfation mg/SO_3/100cm^2/day (30 days)	Footnotes
Country	City or Province	annual mean	24/hr mean		
Canada	Manitoba	0.4	0.8	0.4	2
Canada	Manitoba	0.45	1.0	1.0	3
Canada	New Foundland	0.45	1.0	0.8	1
Canada	Ontario	0.45	1.0	0.8	
Canada	Saskatchewan	-	1.5	-	
Israel	-	-	1.0	-	4
Israel	-	-	2.0 (2 hrs)	-	4

*Coefficient of haze

FOOTNOTES

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1 - Coefficient of haze per 300 meters
2 - Max. desirable level
3 - Max. acceptable level
4 - National Air Quality Standard

TABLE 7. EMERGENCY PROCEDURE CONCENTRATIONS LEVELS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

ALERT LEVELS

Location							
Country	City or Province	SO_2 ppm (24 hrs)	Susp. Part. COH (24 hrs)	CO ppm (8 hrs)	NO_2 ppm (1 hr)	Oxidants ppm (1 hr)	Foot-notes
Argentina		1.0 (1 hr) 0.3 (8 hrs)		50.0 100.0 (1 hr)	0.6 0.15 (24 hrs)	0.15	
Canada	Ontario	API ≥ 50					
Canada	Toronto	API ≥ 50					1,2
Canada	Montreal	0.35(6 hrs) or 0.25	4.0 (6 hrs) 4.0	30.0 (6 hrs)			3 4,5
West Germany	Northrhine-Westphalia & Hessen	2.5 mg/m^3					4,5 6
Israel		3.5 1.5 (6 hrs) 2.0 (6 hrs)	10.0 2.5 (6 hrs)				4 4
Japan		0.2 (3 hrs) 0.3 (2 hrs) 0.5 (1 hr) 0.15 (48 hrs)	2.0 mg/m^3 (2 hrs)	30.0 (1 hr)	0.5	0.14	4

TABLE 7 (CONTINUED). EMERGENCY PROCEDURE CONENTRATIONS LEVELS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

ALARM LEVELS

Location							
Country	City or Province	SO_2 ppm (24 hrs)	Susp. Part. COH (24 hrs)	CO ppm (8 hrs)	NO_2 ppm (1 hr)	Oxidants ppm (1 hr)	Foot-notes
Argentina		5.0 (1 hr)		30.0	1.2	0.25	
				120.0 (1 hr)	0.3 (24 hrs)		
Canada	Ontario	API $\geq$ 75					1,2
Canada	Toronto	API $\geq$ 75					3
Canada	Montreal	0.60	1.0	50.0 (24 hrs)			4,5
			4.0				4,5
West Germany	Northrhine-Westphalia & Hessen	5 mg/m^3					6
Israel		5.0	10.0				4
		2.0 (6 hrs)	2.5 (6 hrs)				4
		3.0 (6 hrs)					4
		Operation Stats.					
		7.5	10.0				4
		3.0 (6 hrs)	2.5 (6 hrs)				4
		4.5 (6 hrs)					4

TABLE 7 (CONTINUED). EMERGENCY PROCEDURE CONCENTRATIONS LEVELS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

EMERGENCY LEVELS

Location							
Country	City or Province	SO_2 ppm (24 hrs)	Susp. Part. COH (24 hrs)	CO ppm (8 hrs)	NO_2 ppm (1 hr)	Oxidants ppm (1 hr)	Foot-notes
Argentina		10.0 (1 hr)		50.0 150.0 (1 hr)	0.4 (24 hrs)	0.4	
Canada	Ontario	API ≥ 100					1,2
Canada	Toronto	API ≥ 100					3
Israel		12.5 7.5 (6 hrs)	20.0				4 4
Japan		0.5 (3 hrs) 0.7 (2 hrs)	3.0 mg/m^3 (3 hrs)	50.0 (1 hr)	1.0	0.5	

TABLE 7 (CONTINUED). EMERGENCY PROCEDURE CONCENTRATIONS LEVELS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

FOOTNOTES

1 - Levels are called "first alert", "second alert" and "episode threshold".

2 - See Eq. A.

3 - See Eq. B.

4 - If stagnation period is forecasted for further 12 hrs.

5 - SO_2 and COH combined for same averaging time.

6 - If level I is reached and stagnation can be expected for 2 more days.

Equations to Table 7

A) $$\text{API} = \frac{SO_2 \text{ index} + \text{COH index}}{2}$$

$$SO_2 \text{ index} = 84\ (SO_2[\text{ppm}])^{0.431}$$

$$\text{COH index} = 26.6\ (\text{COH})^{0.576}$$

B) $$\text{API} = 0.2(30.5(\text{COH}) + 126.0(SO_2) \cdot 1.35)$$

SECTION VI

APPENDIX B: Tables and Figures - Emission Standards of the World (Tables 8 through 16 and Figures 10-1 through 15-4)

Table 8
EMISSION STANDARDS FOR SPECIFIC POLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m3	
Acid gases	Australia		Mfgr. of sulfuric acid	3.0 g/m^3	3000.0	1,15,16,22
Acid gases	Australia	New South Wales	Mfgr. of sulfuric acid from other than elemental S	9.0 g/m^3	9000.0	1,16
Acid gases	Australia	New South Wales	Mfgr. of sulfuric acid from elemental sulfur	7.0 g/m^3	7000.0	1,16,27
Acid gases	Australia	New South Wales	Mfgr. of sulfuric acid from elemental sulfur	3.5 g/m^3	3500.0	1,16,28
Acid gases	Australia	Queensland	Mfgr. of sulfuric acid by chamber process	2.0 grains/ft^3	4576.0	1,16
Acid gases	Australia	Queensland	Mfgr. of sulfuric acid by contact process	3.0 grains/ft^3	6864.0	1,16,17,
Acid gases	Australia	Victoria	Mfgr. of sulfuric acid by chamber process	2.0 grains/ft^3	4576.0	1,16
Acid gases	Australia	Victoria	Mfgr. of sulfuric acid by contact process	4.0 grains/ft^3	9153.0	1,16,17,18

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Acid gases	Australia	Victoria	Mfgr. of sulfuric acid by contact process	3.0 grains/ft^3	6864.0	1,16,17,19
Acid gases	Great Britain		Superphosphate fert. Mfgr.	0.1 grains/ft^3	228.8	1,11
Acid gases	Ireland		Mfgr. of sulfuric acid	4.0 grains/ft^3	9153.0	1
Acid gases	New Zealand		Mfgr. of sulfuric acid	5.0 g/m^3	5000.0	1,22
Acid gases	Singapore		Mfgr. of sulfuric acid	6.0 g/m^3	6000.0	1,16,17
Acrolein	Czechoslovakia			3 kg/hr		35
Aldehydes	West Germany			mg/m^3	20.0	60,64
Ammonia	Czechoslovakia			3 kg/hr		35
Antimony	Australia		Any trade, industry or process	mg/m^3	10.0	4,5,15,16 22,23
Antimony	Australia	New South Wales	Any trade, industry or process	0.02 g/m^3	20.0	4,5,6, 16,23

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Antimony	Australia	Queensland	Any trade, industry or process	0.01 $grains/ft^3$	22.8	4,5,6, 16,25
Antimony	Australia	Victoria	Any industrial plant	0.01 $grains/ft^3$	22.8	4,5,6, 16,23
Antimony	Great Britain		Less than 5000 cfm	0.05 $grains/ft^3$	114.4	5,43
Antimony	Great Britain		More than 5000 cfm	0.02 $grains/ft^3$	45.7	5,43
Antimony	Singapore		Any source	0.02 g/m^3	20.0	4,5,16,25
Arsenic	Australia		Any trade, industry or process	mg/m^3	10.0	4,5, 16,22,23
Arsenic	Australia	New South Wales	Any trade, industry or process	0.02 g/m^3	20.0	4,5,6, 16,23
Arsenic	Australia	Queensland	Any trade, industry or process	0.01 $grains/ft^3$	22.8	4,5,6, 16,25
Arsenic	Australia	Victoria	Any industrial plant	0.01 $grains/ft^3$	22.8	4,5,6, 16,23
Arsenic	Czechoslovkia			0.03 kg/hr		35,36

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Arsenic	**Great Britain**		**Less than 5000 cfm**	**0.05 grains/ft^3**	114.4	5,43
Arsenic	**Great Britain**		**More than 5000 cfm**	**0.02 grains/ft^3**	45.7	5,43
Arsenic	**Singapore**		**Any source**	**0.02 g/m^3**	20.0	4,5,16,25
Benzene	**Czechoslovakia**			**24.0 kg/hr**		35
Beryllium	**Australia**		**Any trade, industry or process**	**mg/m^3**	0.1	5,12, 16,22
Cadmium	**Australia**		**Any trade industry or process**	**mg/m^3**	3.0	4,6, 16,22,23
Cadmium	**Australia**	**New South Wales**	**Any trade, industry or process**	**0.02 g/m^3**	20.0	4,5,6, 16,23
Cadmium	**Australia**	**Queensland**	**Any trade, industry or process**	**0.01 grains/ft^3**	22.8	4,5,6, 16,25
Cadmium	**Australia**	**Victoria**	**Any industrial plant**	**0.01 grains/ft^3**	22.8	4,5,6, 16,23
Cadmium	**Great Britain**		**Maximum-30 lbs/168 hrs**	**0.017 grains/ft^3**	38.9	4,5

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Cadmium	Japan		Cadmium pigment, cadmium carbonate and glass mfgr. copper, lead and cadmium refining	mg/m^3	1.0	5,40
Cadmium	Singapore		Any source	0.02 g/m^3	20.0	4,5,16,25
Carbon	West Germany		Electrode Mfgr.	mg/m^3	250.0	60,73
Carbon black	Czechoslovakia		Amorphous carbon	1.5 kg/hr		35
Carbon dioxide	Italy		Thermal Installations	10% volume	20.0	
Carbon dioxide	Switzerland		Oil burners $<$ 3 kg/hr	8.0% volume		58
Carbon dioxide	Switzerland		Oil burners 3-9.9 kg/hr	10.% volume		58
Carbon dioxide	Switzerland		Oil burners $>$ 10.0 kg/hr	12.0% volume		
Carbon disulfide	Czechoslovakia			0.3 kg/hr		35
Carbon monoxide	Australia		Any trade, industry or process	0.5 g/m^3	500.0	16,22

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Footnotes
	Country	Province or City		Original Units	mg/m^3	
Carbon monoxide	Czechoslovakia			60.0 kg/hr		35
Carbon monoxide	France		Electric generating plants	0.05% volume		
Carbon monoxide	France		Incinerators	0.1% volume		
Carbon monoxide	United States		Fluid catalyst regenerator	0.050% volume		51
Carbon monoxide	West Germany		Gas burning	mg/m^3	250.0	60,81
Carbon monoxide	West Germany (VDI 2117E)		Vaporizer oil burners	0.1% volume		50,81
Carbon monoxide	Yugoslavia	Zagreb	Heating installations	0.1% volume		
Chlorine and Chlorine Compounds	Australia		Any trade, industry or process	0.2 g/m^3	200.0	4,5, 16,22
Chlorine	Australia	New South Wales	Any source	0.2 g/m^3	200.0	16
Chlorine	Australia	Queensland	Any trade, industry or process	0.1 grains/ft^3	228.8	16

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Chlorine	Australia	Victoria	Any industrial plant	0.1 $grains/ft^3$	228.8	16
Chlorine	Czechoslovakia			1.0 kg/hr		35
Chlorine	Great Britain			0.1 $grains/ft^3$	228.8	4
Chlorine	Japan		Ferric chloride, chlorinated ethylene, activated carbon and other chemical mfgr.	mg/m^3	30.0	39
Chlorine	Singapore		Any source	0.2 g/m^3	200.0	16
Chlorine	West Germany		Aluminum Reduction	mg/m^3	3.0	60,81
Chlorine	West Germany		Chlorine Mfgr.	mg/m^3	3.0	60,81
Chlorine	West Germany		Chlorine Mfgr.	mg/m^3	6.0	60,70,81
Chlorine	West Germany		Chlorine Mfgr. Amalgam method	1 g/ton Cl		60,81
Copper	Australia	Queensland	Any trade, industry or process	0.01 $grains/ft^3$	22.8	4,5,6, 16,25

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Copper	Singapore		Any source	0.02 g/m^3	20.0	4,5,16,25
Formaldehyde	Czechoslovakia			0.5 kg/hr		35
Fluorine	Australia	New South Wales	Aluminum reduction	0.04 g/m^3	40.0	3,16,27
Fluorine	Australia	New South Wales	Aluminum reduction	0.02 g/m^3	20.0	3,16,28
Fluorine	Australia	New South Wales	Any other process	0.1 g/m^3	100.0	3,16,27
Fluorine	Australia	New South Wales	Any other process	0.05 g/m^3	50.0	3,16,28
Fluorine	Australia	Queensland	Any trade, industry or process	0.05 $grains/ft^3$	114.4	3,16
Fluorine	Australia	Victoria	Mfgr. of superphosphate, triple-phosphate or aluminum			3,16
Fluorine	Czechoslovakia		Gaseous inorganic compounds	0.3 kg/hr		35
Fluorine	Japan		Aluminum reduction-discharge ducts	mg/m^3	3.0	

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Fluorine	**Japan**		Aluminum reduction-roof vents	mg/m^3	1.0	
Fluorine	**Japan**		Calcium superphosphate mfgr.	mg/m^3	15.0	
Fluorine	**Japan**		Phosphoric acid fertilizer mfgr.	mg/m^3	20.0	
Fluorine	**Japan**		Tri-sodium phosphate, phosphoric acid and glass mfgr.	mg/m^3	10.0	38
Fluorine	**Singapore**		Any source	0.1 g/m^3	100.0	3,16
Fluorine	**West Germany** (VDI 2286)		Aluminum reduction	0.05 g/m^3	50.0	50,81
Fluorine compounds	**Australia**		Aluminum reduction	0.02 g/m^3	20.0	3,15,16,22
Fluorine compounds	**Australia**		Any other process	0.05 g/m^3	50.0	3,15,16,22
Fluorine-inorganic compounds	**Australia**	New South Wales	Aluminum reduction	0.04 g/m^3	40.0	3,16,27

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Fluorine-inorganic compounds	Australia	New South Wales	Aluminum reduction	0.02 g/m^3	20.0	3,16,28
Fluorine-inorganic compounds	Australia	New South Wales	Any other process	0.1 g/m^3	100.0	3,16,27
Fluorine-inorganic compounds	Australia	New South Wales	Any other process	0.05 g/m^3	50.0	3,16,28
Fluorine-inorganic compounds	Australia	Queensland	Any trade, industry or process	0.05 $grains/ft^3$	114.4	3,16
Fluorine-inorganic compounds	Australia	Victoria	Mfgr. of superphosphate triple-phosphate or aluminum	0.05 $grains/ft^3$	114.4	3,16
Fluorine-inorganic compounds	Singapore		Any source	0.1 g/m^3	100.0	3,16
Heavy metals (total)	Australia		Any trade, industry of process	mg/m^3	10.0	59
Hydrochloric acid	Czechoslovakia		As hydrogen ion	0.1 kg/hr	100.0	35

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Hydrochloric acid	West Germany		Mfgr. of hydrochloric acid	mg/m^3	10.0	60,81
Hydrogen chloride	Australia	New South Wales	Any process except terra cotta roofing tile	$0.4\ g/m^3$	400.0	16
Hydrogen chloride	West Germany		Incinerators (all)	mg/m^3	100.0	60,61,81
Hydrogen chloride	Great Britain		Alkali (salt cake) works	$0.2\ grains/ft^3$	4576.0	
Hydrogen chloride	Great Britain		Hydrochloric acid works	$0.2\ grains/ft^3$	4576.0	
Hydrogen chloride	Ireland		Hydrochloric acid works	$0.2\ grains/ft^3$	4576.0	
Hydrogen chloride	Japan		Ferric chloride, chlorinated ethylene, activated carbon and other chemical mfgr.	mg/m^3	80.0	39
Hydrogen chloride	Singapore		Any source	$0.4\ g/m^3$	400.0	16
Hydrogen chloride	West Germany (VDI 3451E)		Adiabatic and isothermic absorption	$0.025\ g/m^3$	25.0	50,53,81
Hydrogen chloride	West Germany (VDI 3451E)		Sulfate methods	$0.40\ g/m^3$	400.0	50,53,81

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Hydrogen chloride	West Germany (VDI 3451E)		Hydrogen chloride electrolysis	0.10 g/m^3	100.0	
Hydrogen chloride	West Germany (VDI 3451E)		Filling and transfer stations	0.10 g/m^3	100.0	50,53,81
Hydrogen chloride	West Germany (VDI 3451E)		Zinc chloride mfgr.	0.16 g/m^3	160.0	50,53,81
Hydrogen chloride	West Germany (VDI 3451E)		Silicon tetrachloride mfrg.	0.20 g/m^3	200.0	50,53,81
Hydrogen chloride	West Germany (VDI 3451E)		Vinyl chloride mfgr.	0.17g/m^3	170.0	50,53,81
Hydrogen chloride	West Germany (VDI 3451E)		α chlorpropion acid mfgr.	0.18 g/m^3	180.0	50,53,81
Hydrogen chloride	West Germany (VDI 3451E)		Sintering crude phosphate	0.35 g/m^3	350.0	50,53,81
Hydrogen chloride	West Germany (VDI 3451E)		Burning chloric organic by-products	0.30 g/m^3	300.0	50,53,81

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Hydrogen chloride	West Germany (VDI 3451E)		Absorption of HCl from collected reaction gases	0.33 g/m^3	330.0	50,53,81
Hydrofluoric acid	Australia	New South Wales	Aluminum reduction	0.04 g/m^3	40.0	3,16,27
Hydrofluoric acid	Australia	New South Wales	Aluminum reduction	0.02 g/m^3	20.0	3,16,28
Hydrofluoric acid	Australia	New South Wales	Any other process	0.1 g/m^3	100.0	3,16,27
Hydrofluoric acid	Australia	New South Wales	Any other process	0.05 g/m^3	50.0	3,16,28
Hydrofluoric acid	Australia	Queensland	Any trade, industry or process	0.05 $grains/ft^3$	114.4	3,16
Hydrofluoric acid	Australia	Victoria	Mfgr. of superphosphate, triplephosphate or aluminum	0.05 $grains/ft^3$	114.4	3,16
Hydrofluoric acid	Singapore		Any source	0.1 g/m^3	100.0	3,16
Hydrogen fluoride	Great Britain			0.1 $grains/ft^3$	100.0	7
Hydrogen fluoride	West Germany		Incinerators, Iron Sintering	mg/m^3	5.0	60,62,81
Hydrogen fluoride	Japan		Aluminum reduction discharge ducts	mg/m^3	3.0	

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Footnotes
	Country	Province or City		Original Units	mg/m^3	
Hydrogen fluoride	**Japan**		Aluminum reduction-roof vents	mg/m^3	1.0	
Hydrogen fluoride	**Japan**		Calcium superphosphate mfgr.	mg/m^3	15.0	
Hydrogen fluoride	**Japan**		Phosphoric acid fertilizer mfgr., Baking Furnace	mg/m^3	30.0	
Hydrogen fluoride	**Japan**		Tri-sodium phosphate, phosphoric acid and glass mfgr.	mg/m^3	1.0	38
Hydrogen fluoride	**West Germany**		Ceramic Kilns	mg/m^3	30.0	60,66,81
Hydrogen fluoride	**West Germany**		Aluminum Reduction	mg/m^3	2.0	60,81
Hydrogen fluoride	**West Germany**		Aluminum Reduction closed furnaces	1 kg/ton Al		60,81
Hydrogen fluoride	**West Germany**		Aluminum Reduction open furnaces	0.8 kg/ton Al		60,81
Hydrogen sulfide	**Australia**		Any trade, industry or process	mg/m^3	5.0	16,22,42

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Hydrogen sulfide	Australia	New South Wales	Any trade, industry or process	5.0 ppm	7.5	
Hydrogen sulfide	Australia	Queensland	Any trade, industry or process	5.0 ppm	7.5	
Hydrogen sulfide	Australia	Victoria	Any industrial plant	5.0 ppm	7.5	
Hydrogen sulfide	Canada	British Columbia	Kraft pulp mill recovery stack	5.0 ppm	7.5	30
Hydrogen sulfide	Canada	British Columbia	Kraft pulp mill recovery stack	20.0 ppm	30.0	31
Hydrogen sulfide	Canada	British Columbia	Kraft pulp mill recovery stack	70.0 ppm	105.0	32
Hydrogen sulfide	Czechoslovakia			0.08 kg/hr		35
Hydrogen sulfide	Great Britain			5.0 ppm	7.5	
Hydrogen sulfide	Singapore		Any source	5.0 ppm	7.5	
Hydrogen sulfide	Sweden		Kraft pulp mill recovery furnace	mg/m^3	10.0	45

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Hydrogen sulfide	United States		Petroleum refineries	mg/m^3	230.0	51,52
Hydrogen sulfide	West Germany		Refineries	1 g/m^3	1000.0	60,71,81
Hydrogen sulfide	West Germany (VDI 2110)		Waste coke oven gas	1.5 g/m^3	1500.0	50,54
Hydrogen sulfide and compounds	West Germany		Coke oven gas	1.5 g/m^3	1500.0	60,72,81
Lead	Australia		Any trade, industry or process	mg/m^3	10.0	4,5,6 16,22,23
Lead	Australia	New South Wales	Any trade, industry or process	0.02 g/m^3	20.0	4,5,6, 16,25
Lead	Australia	Queensland	Any trade, industry or process	0.01 $grains/ft^3$	22.8	4,5,6, 16,25
Lead	Australia	Victoria	Any industrial plant	0.01 $grains/ft^3$	22.8	4,5,6, 16,23
Lead	Czechoslovakia		Except tetraethyl lead	0.007 kg/hr		35

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Lead	Great Britain		Up to 3000 cfm of exhaust gas	0.05 $grains/ft^3$	114.4	4
Lead	Great Britain		3000-10,000 cfm	0.05 $grains/ft^3$	114.4	4,8
Lead	Great Britain		10,000-140,000 cfm	0.01 $grains/ft^3$	22.8	4,9
Lead	Great Britain		over 140,000 cfm	0.005 $grains/ft^3$	11.4	4,10
Lead	New Zealand			mg/m^3	100.0	5,22
Lead	Japan		Refining copper, lead or zinc-blast and sintering furnaces	mg/m^3	30.0	5
Lead	Japan		Glass mfgr. using lead oxides, baking furnace	mg/m^3	20.0	5
Lead	Japan		Pipe, sheet, wire, pigment and storage battery mfgr. and secondary refining	mg/m^3	10.0	5
Lead	Japan		Refining copper, lead, and zinc-other furnaces	mg/m^3	10.0	5
Lead	Singapore		Any source	0.02 g/m^3	200.0	4,5,16,25

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Manganese	Czechoslovakia		As MnO_2	0.1 kg/hr		35
Mercury	Australia		Any trade, industry of process	mg/m^3	3.0	4,5,6, 16,22,23
Mercury	Australia	New South Wales	Any trade, industry or process	0.02 g/m^3	20.0	4,5,6, 16,23
Mercury	Australia	Queensland	Any trade, industry or process	0.01 $grains/ft^3$	22.8	4,5,6, 16,25
Mercury	Australia	Victoria	Any industrial plant	0.01 $grains/ft^3$	22.8	4,5,6, 16,23
Mercury	Czechoslovakia		Metallic	0.003 kg/hr		35
Mercury	Singapore		Any source	0.02 g/m^3	20.0	4,5,16,25
Mercury	Sweden		Ventilation air from chlorine mfgr.	0.001 kg/ton		15
Mercury	Sweden		Hydrogen vented from chlorine mfgr.	0.0005 kg/ton		15

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Nickel	Australia		Any trade, industry or process	mg/m^3	20.0	4,5,12,13, 16,22
Nickel carbonyl	Australia		Any trade, industry or process	mg/m^3	0.5	4,12, 16,22
Nitric acid	Australia		Nitric or sulfuric acid mfgr.	1.0 g/m^3	1000.0	2,15,16,22
Nitric acid	Australia		Any other process except gas-fired power plants	0.5 g/m^3	500.0	2,15,16,22
Nitric acid	Australia	New South Wales	Nitric or sulfuric acid mfgr.	4.5 g/m^3	4500.0	2,16
Nitric acid	Australia	New South Wales	Any other process	2.5 g/m^3	2500.0	2,16
Nitric acid	Australia	Queensland	Nitric acid mfgr.	2.0 $grains/ft^3$	4500.0	2,16
Nitric acid	Australia	Queensland	Process other than nitric or sulfuric acid mfgr.	1.0 $grains/ft^3$	2288.3	2,16
Nitric acid	Australia	Victoria	Nitric or sulfuric acid mfgr.	2.0 $grains/ft^3$	4500.0	2,16

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Footnotes
	Country	Province or City		Original Units	mg/m^3	
Nitric acid	Australia	Victoria	Any other process	1.0 grains/ft^3	2288.3	2,16
Nitric acid	Czechoslovakia		As Hydrogen ion	0.1 kg/hr		35
Nitric acid	Singapore		Nitric acid mfgr.	4.0 g/m^3	4000.0	1,16
Nitric acid	Singapore		Any other process	2.0 g/m^3	2000.0	1,16
Nitrogen oxides	Czechoslovakia		As NO_2	3.0 kg/hr		35
Nitrogen oxides	Australia		Nitric or sulfuric acid mfgr.	1.0 g/m^3	1000.0	2,15,16
Nitrogen oxides	Australia		Gas-fired power plants	0.35 g/m^3	350.0	2,15,16,22
Nitrogen oxides	Australia		Any other process	0.5 g/m^3	500.0	2,15,16,22
Nitrogen oxides	Australia	New South Wales	Nitric of sulfuric acid mfgr.	4.5 g/m^3	4500.0	2,16
Nitrogen oxides	Australia	New South Wales	Any other process	2.5 g/m^3	2500.0	2,16
Nitrogen oxides	Australia	Queensland	Nitric acid mfgr.	2.0 grains/ft^3	4576.0	2,16

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Footnotes
	Country	Province or City		Original Units	mg/m^3	
Nitrogen oxides	Australia	Queensland	Process other than sulfuric or nitric acid mfgr.	1.0 grains/ft^3	2288.3	2,16
Nitrogen oxides	Australia	Victoria	Nitric or sulfuric acid mfgr.	2.0 grains/ft^3	4576.6	2,16
Nitrogen oxides	Australia	Victoria	Any other process	1.0 grains/ft^3	2288.3	7
Nitrogen oxides	Great Britain			1.0 grains/ft^3	2288.3	2,16
Nitrogen oxides	Great Britain		Nitric acid mfgr.	1000.0 ppm	1800.0	2,14
Nitrogen oxides	Japan		Boiler			41
Nitrogen oxides	Japan		Metal heating furnaces ≥10,000 m^3/hr gas	200 ppm	360.0	65,76
Nitrogen oxides	Japan		Metal heating furnaces ≥40,000 m^3/hr gas	220 ppm	396.0	65,77,78
Nitrogen oxides	Japan		Heater for petroleum and petroleum industry ≥10,000 m^3/hr gas	170 ppm	306.0	76,79
Nitrogen oxides	Japan		Heater for petroleum and petroleum industry ≥40,000 m^3/hr gas	210 ppm	378.0	77,78,79

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Nitrogen oxides	Japan		Nitric acid production ≥10,000 m^3/hr gas	200 ppm	360.0	76
Nitrogen oxides	Japan		Nitric acid production ≥40,000 m^3/hr gas	200 ppm	360.0	77,88
Nitrogen oxides	Singapore		Nitric acid mfgr.	4.0 g/m^3	4000.0	1,16
Nitrogen oxides	Singapore		Any other process	2.0 g/m^3	2000.0	1,16
Nitrogen oxides	United States		New gas fuel power plants	0.2 lb/MBTU		
Nitrogen oxides	United States		New liquid fuel power	0.3 lb/MBTU		
Nitrogen oxides	United States		New solid fuel power plants	0.7 lb/MBTU		
Nitrogen oxides	United States		New nitric acid plants	3.0 lb/ton acid		
Nitrogen oxides	West Germany		Gas burning units	mg/m^3	400.0	60,81
Nitrogen oxides	West Germany		Mfgr. of nitric acid	1 g/m^3	1000.0	60,67,81
Nitrogen oxides	West Germany		Mfgr. of nitric acid	0.1 g/m^3	100.0	60,68,69,81

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Nitrogen oxides	West Germany (VDI 2295)		Nitric acid mfgr.	4.0 g/m^3	4000.0	50,55,81
Nitrogen oxides	West Germany (VDI 2295)		Nitric acid high pressure plant	3.0 g/m^3	3000.0	50,81
Organic compounds	West Germany					60,63,81
Organic compounds	West Germany		Incineration of fluids	mg/m^3	50.0	60,65,81
Phenol	Czechoslovakia			3.0 kg/hr		35
Phosphoric acid	Australia	Victoria	Any industrial plant	0.2 grains/ft^3	457.6	16,21
Phosphorus pentoxide	Australia	Victoria	Any industrial plant	0.2 grains/ft^3	457.6	16,21
Silicon fluoride	Japan		Aluminum reduction-discharge ducts	mg/m^3	3.0	
Silicon fluoride	Japan		Aluminum reduction-roof vents	mg/m^3	1.0	
Silicon fluoride	Japan		Calcium superphosphate mfgr.	mg/m^3	15.0	
Silicon fluoride	Japan		Phosphoric acid fertilizer mfgr.	mg/m3	20.0	

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Silicon fluoride	Japan		Tri-sodium phosphate, phosphoric acid and glass mfgr.	mg/m^3	10.0	38
Sulfur compounds	Canada	Manitoba	Any process	0.2% volume		34
Sulfur compounds-bivalent	Canada	British Columbia	Kraft pulp mill recovery stack	0.16 lbs/ADT		29,30
Sulfur compounds bivalent	Canada	British Columbia	Kraft pulp mill recovery stack	0.64 lbs/ADT		29,31
Sulfur compounds-bivalent	Canada	British Columbia	Kraft pulp mill recovery stack	2.24 lbs/ADT		29,32
Sulfur compounds-bivalent	Canada	British Columbia	Kraft pulp mill-other	0.4 lbs/ADT		29,30
Sulfur compounds-bivalent	Canada	British Columbia	Kraft pulp mill-other	0.7 lbs/ADT		29,31
Sulfur compounds-bivalent	Canada	British Columbia	Kraft pulp mill-other	1.5 lbs/ADT		29,32
Sulfur dioxide	Brazil	Santo Andre		200.0 ppm	520.0	

Table 8 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location Country	 Province or City	Source	Standard Original Units	 mg/m^3	Foot-notes
Sulfur dioxide	Brazil	Sao Bernardo do Campo		200.0 ppm	520.0	
Sulfur dioxide	Brazil	Sao Coetano de Sul		200.0 ppm	520.0	
Sulfur dioxide	Canada	British Columbia	Kraft pulp mill recovery stack	200.0 ppm	520.0	30,33
Sulfur dioxide	Canada	British Columbia	Kraft pulp mill recovery stack	250.0 ppm	650.0	31,33
Sulfur dioxide	Canada	British Columbia	Kraft pulp mill recovery stack	300.0 ppm	780.0	32,33
Sulfur dioxide	Czechoslovakia					
Sulfur dioxide	East Germany					37
Sulfur dioxide	France					49,82
			Space heating sources Smokeless zones 1&2	2.0 g/10^4 cal (as S)		83
Sulfur dioxide	Great Britain		Sulfuric acid concentration	1.5 grains/ft^3	3432.4	1
Sulfur dioxide	Great Britain		New contact sulfuric acid plants	0.5% of the sulfur burned		

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location Country	 Province or City	Source	Standard Original Units	 mg/m^3	Foot-notes
Sulfur dioxide	Great Britain		Old sulfur-burning acid plants	2% of the sulfur burned		
Sulfur dioxide	Great Britain		Old sulfuric acid plants-other than sulfur burning	4.0 grains/ft^3	9153.2	1
Sulfur dioxide	Italy		Heating plants	0.20% volume		74
Sulfur dioxide	Japan					46
Sulfur dioxide	Spain	Madrid	Home heating furnaces-solid fuels	0.25% volume		
Sulfur dioxide	Spain	Madrid	Home heating furnaces-liquid fuels	0.20% volume		
Sulfur dioxide	Sweden		New sulfuric acid plants	5 kg/ton acid		47
Sulfur dioxide	Sweden		Existing sulfuric acid plants	20.0 kg/ton acid		47
Sulfur dioxide	Sweden		Ammonia mfgr.			48
Sulfur dioxide	Sweden		New sulfite pulp mills	20.0 kg/ton pulp		
Sulfur dioxide	Sweden		Existing sulfite pulp mills	30.0 kg/ton fuel		

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Sulfur dioxide	Sweden		Oil steam-electric power plants over 300 mw	20.0 kg/ton fuel		
Sulfur dioxide	United States		New liquid fuel power plants	0.8 lb/MBTU		
Sulfur dioxide	United States		New solid fuel power plants	1.2 lb/MBTU		
Sulfur dioxide	West Germany		Sulfur mfgr.	1 ton/hr		60,81
Sulfur dioxide	West Germany		Sulfuric acid (100%)	mg/m^3	30.0	60,81
Sulfur dioxide	West Germany		Gas burning units	mg/m^3	50.0	60,81
Sulfur dioxide	West Germany		Non-ferrous rough metal processing	3 g/m^3	3000.0	60,81
Sulfur dioxide	West Germany (VDI 2110)		Waste coke oven gas	2.54 g/m^3	2540.0	50,81
Sulfur dioxide	West Germany (VDI 2110)		Waste coke oven gas	0.59 g/m^3	590.0	50,5[illegible],81
Sulfur dioxide	West Germany (VDI 2110)		Sulfuric acid (100%) mfgr.	1.5 g/m^3	1500.0	50,81

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Sulfur oxides	Australia	Victoria	Industrial plants	0.27 lbs/MBTU		1,15,16
Sulfuric acid	Australia		Any trade industry or process	0.1 g/m^3	100.0	22,26
Sulfuric acid	Australia	New South Wales	Any trade, industry or process	0.2 g/m^3	200.0	1,16,26, 27
Sulfuric acid	Australia	New South Wales	Any trade, industry or process	0.1 g/m^3	100.0	1,16,26 28
Sulfuric acid	Australia	Queensland	Processes other than combustion or sulfuric acid mfgr.	0.1 $grains/ft^3$	228.8	1,16,26
Sulfuric acid	Australia	Victoria	Processes other than combustion or sulfuric acid mfgr.	0.1 $grains/ft^3$	228.8	1,16,24
Sulfuric acid	Czechoslovakia		As hydrogen ion	0.1 kg/hr		35
Sulfuric acid	Singapore		Processes other than combustion or sulfuric acid mfgr.	0.2 g/m^3	200.0	1,16,26

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Foot-notes
	Country	Province or City		Original Units	mg/m^3	
Sulfuric acid	United States		New sulfuric acid plants	0.15 lb/ton acid		44
Sulfuric acid	West Germany (VDI 2298)		SO_3 & H_2SO_4 mfgr.	mg/m^3	5.0	50,81
Sulfuric acid	West Germany (VDI 2298)		SO_3 & H_2SO_4 mfgr.	2 kg/ton acid		50,81
Sulfur trioxide	Australia		Any trade, industry or process	0.1 g/m^3	100.0	1,15,16, 22,26
Sulfur trioxide	Australia	New South Wales	Any trade, industry or process	0.2 g/m^3	200.0	1,16,26, 27
Sulfur trioxide	Australia	New South Wales	Any trade, industry or process	0.1 g/m^3	100.0	1,16,26, 28
Sulfur trioxide	Australia	Queensland	Processes other than combustion or sulfuric acid mfgr.	0.1 $grains/ft^3$	228.8	1,16,26
Sulfur trioxide	Australia	Victoria	Processes other than combustion or sulfuric acid mfgr.	0.1 $grains/ft^3$	228.8	1,16,24

Table 3 (continued). EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Substance	Location		Source	Standard		Footnotes
	Country	Province or City		Original Units	mg/m^3	
Sulfur trioxide	Singapore		Processes other than combustion or sulfuric acid mfgr.	0.2 g/m^3	200.0	1,16,26
Sulfur trioxide	Sweden		New sulfuric acid plants	0.5 kg/ton acid		47
Sulfur trioxide	Sweden		Existing sulfuric acid plants	0.8 kg/ton acid		47
Sulfur trioxide	West Germany (VDI 2298)		SO_3 & H_2SO_4 mfgr. contact method	0.4 kg/ton aci		50,57,81
Trichloraethylene (including Perchlor-)	West Germany	Northrhine-Westphalia	Dry cleaning	mg/m^3	200.0	81

Footnotes
Table 3
EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

1. As SO_3
2. As NO_2
3. As hydrofluoric acid
4. As the element
5. Also compounds of the element
6. Also limit for addition of each heavy metal or compound expressed as the metal in each case
7. As SO_3 equivalent in original units
8. One hundred lb/week mass emission limit
9. Four hundred lb/week mass emission limit
10. One thousand lb/week mass emission limit
11. Or efficiency of condensation of acid gases greater than 99%
12. Tentative standard only
13. Except Nickel Carbonyl
14. And the emission shall be colorless
15. Intended for application to new plants
16. STP at 0°and 1 atmosphere (dry)

Footnotes

Table 8

EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

17. Discharge free from persistent mist

18. Plants which came into operation before January 1, 1965

19. Plants which came into operation after January 1, 1965

20. Emission shall be substantially free from persistent mist

21. As P_2O_5

22. National guidelines for new plants

23. Total of antimony, arsenic, cadmium, lead, mercury or their compounds may not exceed this limit

24. Total acidity, expressed as SO_3, not to exceed this limit

25. Total of antimony, arsenic, cadmium, copper, lead, mercury or their compounds not to exceed this limit

27. Plants for which applications for approval were made before January 1, 1972

28. Plants for which application for approval were made after January 1, 1972

29. ADT - Ton of air-dried screened pulp produced

30. Objective level A - Average value for 24 hour period

31. Objective level B - Average value for 24 hour period

32. Objective level C - Average value for 24 hour period

33. Every eight hours but preferably 8-hour composite 3 times a day

Footnotes
Table 8
EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

34. As SO_2

35. Emission rate above which it is necessary to submit a report to the government: Where discharge is for less than 1 hour, there is a proportionate increase in emission rate permissible without such reporting

36. Inorganic compounds - except arsenic

37. See Table 8-1

38. Glass manufacture using fluorite or sodium silicofluorate as raw materials

39. Includes chlorine quick cooling for chlorinated ethylene manufacture

40. Glass manufacture using cadmium sulfide or carbonate as raw materials

41. See Table 8-2

42. As H_2S

43. As the trioxide

44. As H_2SO_4

45. Ninety nine per cent of the time per month for new units, 90% for existing units; also

$$\frac{\text{Concentration in stack gas}}{\text{Concentration at odor threshold}} = \text{at least } 10{,}000$$

46. See Table 8-3

Footnotes
Table 8
EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

47. Sulfur or pyrite as raw material

48. Equipment for releasing sulfur required

49. See Table 8-5, Table 8-6

50. Verein Deutscher Ingenieure

51. Proposed

52. Unless burned to SO_2 in a manner that prevents release of SO_2 to atmosphere

53. Wet

54. Other sulfuric compounds 500 mg/m^3

55. Undiluted tailgas

56. By using partly desulfured coke oven gas

57. At least 99% SO_2 has to be recycled

58. As guideline

59. Addition of each metal or compound expressed as the metal in each case

60. Proposed Federal Standard (status of October, 1973)

61. Applies to sources with 3 kg/hr Hydrogen chloride or more

62. Applies to sources with 150 g/hr Hydrogen fluoride or more

Footnotes
Table 8
EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

63. See Table 8-7

64. As Formaldehyde

65. 11% volume O_2 in gas

66. If diffusion conditions are unfavorable 5 mg/m^3 F

67. During 95% of production time per year standard shall be met; during 5% of production time per year 1.5 g/m^3 shall not be exceeded.

68. For units with process pressures above 4.5 bar

69. During 95% of production time per year standard shall be mer; during 5%or production time per year, 0.9 g/m^3 shall not be exceeded.

70. If complete liquification

71. If H_2S concentration 10% volume, gases have to be treated or burned. After treatment limit is 2 mg H_2S/m^3

72. An hourly average, other sulfuric compound, 0.5 mg/m^3

73. With 8% volume CO_2

74. For thermal installations burning liquid fuels with viscosity > 5° Engler and > 4% S

75. See Table 8-2

Footnotes
Table 3
EMISSION STANDARDS FOR SPECIFIC POLLUTANTS IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICITONS OF THE UNITED STATES

76. For facilities to be constructed

77. For facilities already constructed

78. Transitional period ends August 1975.

79. With 6% volume O_2 in stack gas

80. Transitional period ends August 1976

81. West Germany = Federal Republic of Germany

82. East Germany = Democratic Republic of Germany

83. Includes areas in: Paris;Lille,La Madelene, Loos, Lomme, Hauborlin, Roubaix, Tourcoing, Croix Wasquehal, Wattrelos, Villeurbanne

1 BTU = 0.252 kcal
1th = 1000 kcal

TABLE 8-1
PERMISSIBLE EMISSION - Czechoslovakia

Stack height[a] (meters)	Permissible emission in kg/hour		
	From combustion of fuel		Multiplier for K_{max} for other harmful substances[b,c]
	Fly ash	SO_2	
7	2.5	2	4
8	3	2.3	4.6
10	4	3.2	6.4
12	5	4.2	8.4
14	7	5.3	10.6
16	9	6.8	13.6
18	11.4	8.4	16.8
20	14	10	20.0
25	21	13.5	27.0
30	31	22.5	45.0
35	42	32.5	65.0
40	55	46	92.0
45	70	60	120.0
50	84	82.5	165.0
55	110	100	200
60	130	122	245.0
65	160	145	290.0
70	192	170	340.0
75	225	195	390.0
80	260	227	455
85	290	257	514
90	325	295	590
95	360	335	670
100	400	375	750
110	490	900	930
120	580	1425	1130
130	675	1950	1340
140	785	2475	1560
150	900	3000	1790
160	1010	3555	2060
170	1130	4110	2320
180	1270	4665	2600
190	1400	5220	2890
200	1550	5779	3200
220	1820	6355	3840
240	2110	6930	4500
260	2400	7510	5160
280	2700	8085	5820
300	3000	8665	6500

Footnotes:

[a] Where the harmful substances are discharged through two or more chimneys situated within the area of a circle of 1 km in diameter, the chimneys of one and the same establishment are regarded as one chimney. For varying heights of chimneys, the method of calculation shall be established by the Ministry of Forest Administration and Water Conservation in a work instruction manual.

[b] For substances listed for Czechoslovakia in Table II, "K_{max}" is the concentration for 30-minute averaging time: e.g., for ammonia, $K_{max} = 0.3$ mg/m³. Therefore the permissible emission of ammonia from a 100-m stack is 750 × 0.3 = 225 kg/hour.

[c] Where the discharge is for less than 1 hour, there is a proportionate reduction in allowable emission in kilograms.

TABLE 8-2
EMISSION STANDARDS FOR NITROGEN OXIDES FROM STATIONARY SOURCES - Japan

Type of Source	% oxygen in flue gas used as computation basis (a)	Emission Standard-ppm(b)	
		New Plants	Existing Plants
Nitric Acid Plants	(c)	200	200
Boiler Furnaces		> 40,000 m^3/hr flue gas	>100,000 m^3/hr flue gas
Gas-fired	5	130	170
Coal-fired >5000Kcal	6	480	600
Coal-fired ≤5000Kcal	6	480	750
Oil-fired	4	180	230
Tar-fired	4	180	280
Other Furnaces		>10,000 m^3/hr flue gas	>40,000 m^3/hr flue gas
Metal Heating	11	200	220
Petroleum Heating	6	170	210

(a) Computed NO_x concentration = Measured NO_x concentration $\left\{\frac{21-\%\ O_2 \text{ from column}}{21-\text{Actual}\ \%\ O_2}\right\}$

(b) NO_x measured by JIS Method K 0104, time-averaged where emission varies extremely with time. Nitric acid plants allowed 3 years for compliance; all others - 2 years

(c) No computation required

TABLE 8-3

EMISSION STANDARDS FOR SULFUR OXIDES FROM STATIONARY SOURCES - JAPAN

Allowable Emission in m^3/hr STP = 10^{-3} (k)(effective stack height in m)
STP = 0°C and 1 atmosphere pressure

Ordinary	Period I 1969.12.1		Period II 1970.2.1 –		Period III 1971.6.24 –	Period IV 1972.1.5 –		Period V 1973.1.1	
Rank	K value (ppm)	District	K value	District	Added district	K value	District	K value	District
1	20.4 (0.035)	Tokyo A, Yokohama Kawasaki, Yokkaichi, Osaka A, Kobe Amagasaki	11.7 (0.020)	Tokyo A, Yokohama, Kawasaki, Yokkaichi, Osaka A, Kobe, Amagasaki	Yokosuka, Takarazuka Kawanishi	7.01 (0.012)	Tokyo A, Yokohama, Kawasaki etc., Yokkaichi, Osaka A, Kobe, Amagasaki etc.	6.42 (0.011)	Tokyo A, Yokohama Kawasaki, etc., Nagoya, etc., Yokkaichi, Osaka A, Kobe, Amagasaki, etc.
2	26.3 (0.045)	Chiba, Ichihara, Fuji, Nagoya, Osaka B, Kurashiki, Northern Kyushu	12.8 (0.022)	Kashima, Chiba Ichihara, Kurashiki	Akita, Toyohashi etc., Handa etc., Kasaoka, Fukuyama	7.59 (0.013)	Chiba, Ichihara etc., Fuji etc., Nagoya etc., Kurashiki, Mizushima District	7.59 (0.013)	Kawaguchi, Hatogaya, etc., Chiba, Ichihara etc., Fuji etc., Handa etc., Himeji, Akashi etc., Wakayama, Kainan etc., Kurashiki, Mizushima etc., Northern Kyushu
3	29.2 (0.050)	Muroran, Kamaishi, Hitachi, Kawaguchi, Hatogaya, Niigata, Toyama, Takaoka, Kyoto, Wakayama, Kainan, Kure, Otake, Ube, Onoda, Tokuyama, Iwakuni, Niihama, Saijo, Omuta, Nobeoka	14.0 (0.024)	Muroran, Fuji Nagoya, Himeji, Wakayama, Kainan, Northern Kyushu, Oita	Tomakomai, Iwaki, Annaka, Takasaki, Karukame, Sakaide, Mishima, Kawanoe	9.34 (0.016)	Sapporo, Muroran, Kawaguchi, Hatogaya etc., Kyoto, Himeji, Akashi etc. Wakayama, Kainan, Kurashiki and other districts, Northern Kyushu, Oita	9.34 (0.016)	Sapporo, Muroran, Shimizu, Kyoto, Osaka B, Kurashiki and other districts, Kasaoka, Bizen, Fukuyama, Otake, Ube, Onoda, Tokuyama etc., Iwakuni, Karukame, Sakaide, Omuta, Karita, Arao, Oita
4			15.8 (0.027)	Sapporo, Kawaguchi, Hatogaya, Kyoto	Soka, Warabi, Utsunomiya, Tokushima, Anan	11.7 (0.020)	Kashima etc., Tokyo B, Niigata, Toyama, Takaoka, Osaka B, Otake, Ube, Onoda, Iwakuni, Niihama, Saijo, Omuta, Karita, Arao	11.7 (0.020)	Tomakomai, Sendai, Shiogama etc., Akita, Iwaki, Hitachi, Kashima, Takasaki, Annaka, Tokyo B, Niigata, Toyama, Takaoka, Toyohashi etc., Kure, Shimonoseki, Hikojima, Tokushima etc., Niihama, Saijo, Nobeoka
5			17.5 (0.030)	Hitachi, Tokyo B, Osaka B, Otake, Iwakuni, Niihama, Saijo, Omuta, Arao	Koriyama	12.8 (0.022)	Akita, Toyohashi etc., Handa etc., Kasaoka, Fukuyama	14.0 (0.024)	Hachinohe, Ishinomaki etc., Natori etc., Koriyama, Utsunomiya, etc., Seto etc., Hofu, Mishima, Kawanoe
6			20.4 (0.035)	Niigata, Toyama, Takaoka, Ube, Onoda		14.0 (0.024)	Tomakomai, Hachinohe, Iwaki, Hitachi, Annaka, Takasaki, Shimizu, Bizen, Kure, Tokuyama, Sakaide, Karukame, Mishima, Kawanoe, Shimonoseki, Hikojima	15.8 (0.027)	Kanazawa, Fukui, Tsuruga, Otsu etc., Aioi, Akaho etc., Shimonoseki Metropolitan districts, Kochi
7			23.3 (0.040)	Kure, Tokushima		15.8 (0.027)	Sendai, Shiogama etc., Ishinomaki etc., Natori etc., Koriyama, Utsunomiya etc., Kanazawa, Fukui, Tsuruga, Seto etc., Otsu etc., Hofu, Tokushima, Nobeoka, Kochi	18.7 (0.032)	Kamaishi, Sakata, Okayama, Hiroshima, Kaidaichi etc., Mihara, Onomichi, Fukuoka, Nagasaki
8			26.3 (0.045)	Hachinohe, Kamaishi, Sendai, Nobeoka	Other districts	18.7 (0.032)	Kamaishi, Sakata, Aioi, Akaho etc., Hiroshima, Kaidaichi, etc., Mihara, Onomichi etc., Fukuoka, Nagasaki, Okayama, Shimonoseki Metropolitan districts		
9						22.2 (0.038)	Other districts	22.2 (0.038)	Other districts

		Period I 1969.7.25	Period II Addition 1971.6.24	Period III Revised on Jan. 5, 1972		
Special Emission Standards	5.26 (0.009)	Tokyo (Special wards), Yokohama, Kawasaki, Osaka, Amagasaki, Yokkaichi	Kawaguchi, Hatogaya etc., Chiba etc., Fuji, Nagoya, Kyoto, Kobe, Himeji, Wakayama, Kurashiki, Ube, Northern Kyushu, Omuta	1	2.92 (0.05)	Tokyo A, Osaka A, Yokohama, Kawasaki, Kobe, Amagasaki etc., Yokkaichi etc., Nagoya etc.
				2	3.50 (0.006)	Chiba etc., Kawaguchi etc., Yokosuka, Fuji Himeji, etc., Kurashiki A, Northern Kyushu
				3	5.26 (0.009)	Kyoto etc., Wakayama etc., Ube, Onoda, Omuta, Karita

Notes: 1. The figures in parentheses below K value indicate maximum ground concentration.
2. Tokyo A includes special wards, Mitaka City etc., and Tokyo B includes Hachioji City, Tachikawa City etc., Osaka A includes Osaka City etc., Osaka B includes Kishiwada City and Ikeda City Etc.

Table 8-4 Emission Standards for Sulfur Oxides from Stationary Sources, Newest Revision, April 1974, Japan

Relationship between K Values and Maximum Densities at Ground Level

	Special Standard		General Standard	
Previous K value	2.29	5.26	6.42	22.2
Maximum densities at ground level (ppm)	0.005	0.009	0.011	0.038
New K values	1.17	2.34	3.50	1.75
Maximum densities at ground level (ppm)	0.002	0.004	0.006	0.030

Table 2: General Standards

K Values	Areas
3.5	Tokyo, Yokohama · Kawasaki, Nagoya, Yokkaichi, etc. (6 areas)
4.67	Chiba · Ichihara, Kurashiki · Mizushima, Kitakyushu, etc. (7 areas)
6.42	Sapporo, Muroran, Kashima, etc. (16 areas)
8.76	Tomakomai, Niigata, Shimonoseki, etc. (19 areas)
11.7	Okayama, Hiroshima, Fukuoka, etc. (16 areas)
14.6	Asahikawa, Kushiro, Shizuoka, Nagasaki, Sasebo, Kagoshima, etc. (35 areas)
17.5	Other areas

(B) Special Standards

The number of districts where the special standards, applying to newly built facilities, are enforced was increased from 18 to 28, with the standard K values strengthened from 2.92–5.26 to 1.17–2.34 at the same time. This means that when a thermal power station with 200-meter-high smokestack for 600,000 kilowatts is built in Tokyo where the K value of 1.17 applies, the sulfur content in

See also Table 11 Stack Heights Requirements, other than those from Subsidiary Jurisdiction of the United States

Table 8-5. Emission Standards for Sulfur Dioxide and Multiplication Factor s for Other Gaseous Pollutants in East Germany[a]

Effective stack ht, m	Allowable SO_2 emission (kg/hr) when the given background level concentration exists			s,[b] Other pollutant
	0.4 mg/m^3	0.3 mg/m^3	0.2 mg/m^3	
10	4.26	3.20	2.13	10.65
15	9.59	7.19	4.79	23.96
20	17.04	12.78	8.52	42.60
25	26.63	19.97	13.31	66.56
30	38.34	28.76	19.17	95.85
35	52.19	39.14	26.09	130.46
40	68.16	51.12	34.08	170.40
45	86.27	64.70	43.13	215.66
50	106.50	79.88	53.25	266.25
60	153.36	115.02	76.68	383.40
70	208.74	156.56	104.37	521.85
80	272.64	204.13	136.32	681.60
90	345.06	258.80	172.53	862.65
100	420,00	319.50	213.00	1,065.00
120	613.44	460.08	306.72	1,533.60
140	834.96	626.22	417.48	2,087.40
160	1,090.56	817.92	545.28	2,726.40
180	1,380.24	1,035.18	690.12	3,450.60
200	1,704.00	1,278.00	852.00	4,260.00
220	2,061.84	1,546.38	1,030.92	5,154.60
240	2,453.76	1,840.32	1,226.88	6,134.40
260	2,879.76	2,159.82	1,439.88	7,199.40
280	3,339.84	2,504.88	1,669.92	8,349.60
300	3,834.00	2,875.50	1,917.00	9,585.00

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[a] See also Figure 11-1, 11-2

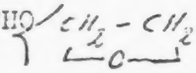
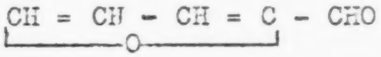
[b] Allowable emission in kg/hr = S (Ambient air quality standard (MIK_k), in mg/m^3 listed in Table II for "East Germany" for 30-minute averaging time); e.g. for acetaldehyde - MIK_k - 0.03 mg/m^3. Therefore the permissible emission of acetaldehyde from a 100-m stack is 1,065.0 X 0.03 = 31.95 kg/hr.

TABLE 8-6
AREA CLASSIFICATION - Democratic Republic of Germany (East Germany)

R- Actual Air Quality / Air Quality Standard	Class Number	Class Description	Ambient SO_2 Concentration level - mg/m^3	Q- Actual Ambient Conc. Multiplying Factor for Settleable Dust Computation
≤ 0.5	1	Slightly polluted	0.4	0.8
$>0.5 - \leq 1.0$	2	Polluted	0.3	0.6
$>1.0 - \leq 1.5$	3	Over polluted	0.2	0.4
$>1.5 - \leq 2.5$	4	Considerably over polluted	-	-
>2.5	5	Heavily over polluted	-	-

TABLE 8-7
CLASSIFICATION OF POLLUTANTS, WEST GERMANY

Klasse I

Acetaldehyd	$CH_3 - CHO$
Acrolein	$CH_2 = CH - CHO$
Athylenoxid	 $\underbrace{CH_2 - CH_2}_{O}$
Ameisensäure	$HCOOH$
Anilin	$C_6H_5 - NH_2$
Benzol	C_6H_6
Buttersäure	$CH_3 - (CH_2)_2 - COOH$
Caprinsäure	$CH_3 - (CH_2)_8 - COOH$
Capronsäure	$CH_3 - (CH_2)_4 - COOH$
Caprylsäure	$CH_3 - (CH_2)_6 - COOH$
Diäthylamin	$(C_2H_5)_2 NH$
Dimethylamin	$(CH_3)_2 NH$
Dinitrobenzol	$C_6H_4 - (NO_2)_2$
Formaldehyd	$H_2C = O$
Furfurol	 $\underbrace{CH = CH - CH = C}_{O} - CHO$
Kresol Isomere des Kresols	$CH_3 - C_6H_4 - OH$
Monoäthylamin	$C_2H_5 - NH_2$
Monomethylamin	$CH_3 - NH_2$
Nitrobenzol	$C_6H_5 - NO_2$
Önanthsäure	$CH_3 (CH_2)_5 COOH$
Phenol	$C_6H_5 - OH$
Propionsäure	$CH_3 CH_2 COOH$
Pyridin	$C_5H_5 N$
Thiophenol	C_6H_5SH
Triäthylamin	$(C_2H_5)_3 N$
Trimethylamin	$(CH_3)_3 N$
Valeriansäure	$CH_3(CH_2)_3 COOH$

Lösemittel mit Benzolgehalten

Merkaptane

Thioäther

TABLE 8-7 cont'd
CLASSIFICATION OF POLLUTANTS, WEST GERMANY

Klasse II

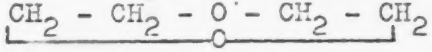
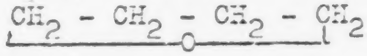
Acrylsäuren Derivate der Acrylsäure	$CH_2 = CH - COOH$
Äthylbenzol	$C_6H_5C_2H_5$
Amylacetat	$CH_3 - CO - O - C_5H_{11}$
Amylalkohol Isomere des Amylalkohols	$C_5H_{11} - OH$
i-Butanol	$C_4H_9 - OH$
n-Butanol	$C_4H_9 - OH$
n-Buthylacetat	$CH_3 - CO - O - C_4H_9$
Chloroform	$CHCl_3$
Cyclohexanon	$C_6H_{10}O$
Diaceton-Alkohol	$(CH_3)_2\ C\ (OH)\ CH_2 - COCH_3$
Dichloräthan (Äthylenchlorid)	$C_2H_4\ Cl_2$
Dichloräthylen	$CHCl = CHCl$
o-Dichlorbenzol	$C_6H_4\ Cl_2$
Dimethylformamid (DMF)	$HCON\ (CH_3)_2$
Dioxan	 $\underbrace{CH_2 - CH_2 - O - CH_2 - CH_2}_{O}$
Essigsäure	CH_3COOH
Methylacetat	$CH_3 - CO - O - CH_3$
Methyläthylketon (MEK)	$CH_3 - CO - C_2H_5$
Methylcyclohexanon	$CH_3C_5H_9CO$
Methylenchlorid	CH_2Cl_2
Methylglykol	$CH_3 - O - CH_2 - CH_2OH$
Methylisobutylketon (MIBK)	$CH_3 - CO - CH_2 - CH - (CH_3)_2$
Monochlorbenzol	$C_6H_5\ Cl$
Naphtalin	$C_{10}H_8$
Perchloräthylen (Tetrachlor)	$CCl_2 = CCl_2$
Schwefelkohlenstoff	CS_2
Styrol (Vinylbenzol)	$C_6H_5 - CH = CH_2$
Tetrochlorkohlenstoff	CCl_4
Tetrahydrofuran (THF)	 $\underbrace{CH_2 - CH_2 - CH_2 - CH_2}_{O}$

TABLE 8-7 cont'd
CLASSIFICATION OF POLLUTANTS, WEST GERMANY

Tetrahydronaphtalin	$C_{10}H_{12}$
Toluol	$C_6H_5 - CH_3$
Trichloräthan (1,1,1)	$CH_3 - CCl_3$
Trichloräthylen	$CCl_2 = CHCl$
Vinylacetat	$CH_3 - CO - O - CH = CH_2$
Xylol	$C_6H_4\ (CH_3)_2$

Klasse III

Aceton	$CH_3\text{-}CO\text{-}CH_3$
Äthylacetat	$CH_3\text{-}CO\text{-}O\text{-}C_2H_5$
Äthylglykol (Cellosolve)	$C_2H_5O\text{-}CH_2\text{-}CH_2OH$
Cyclohexan	C_6H_{12}
Diäthyläther	$C_2H_5\text{-}O\text{-}C_2H_5$
n-Heptan	C_7H_{16}
n-Hexan	C_6H_{14}
Methanol	$CH_3\quad OH$
Methylcyclohexan	$C_6H_{11}CH_3$
n-Pentan	C_5H_{12}
i-Propyläther	$(CH_3)_2CH\text{-}O\text{-}CH(CH_3)_2$
Propanol	$C_3H_7\text{-}OH$

The gaseous compounds not included in this table shall be placed into the classes where they seem to fit in by toxicological properties. If this is not possible the chemical similarity with listed compounds is the only criterion for a classification.

Emissions of Class I (>0.1 kg/hr) 20 mg/m^3

Emissions of Class II (>3.0 kg/hr) 150 mg/m^3

Emissions of Class III (>6.0 kg/hr) 300 mg/m^3

Table 9. FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

LIQUID FUELS

Location		Fuel Type	Lead Content (g/l)	Sulfur Content (%)	Foot-notes
Country	Province or City				
Austria		Gasoline	0.4	1	
Austria		Fuel Oil			
		light		1.5	
		medium		2.5	
		heavy		3.5	
Austria	Insbruck	All Kinds		1.0	
Belgium		Gasoline		1.0	
Belgium		Fuel Oil			
		light		1.5	
		medium		2.7	
		heavy		3.8	
		extra heavy		4.5	
		heating oil		1.0	8,11
Canada		Gasoline	2.5 g/imp. gal.		12
Canada	New Brunswick				2
Canada	Ontario				3
Canada	Montreal				4

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

LIQUID FUELS

Location		Fuel Type	Lead Content (g/l)	Sulfur Content (%)	Foot-notes
Country	Province or City				
Denmark		Gasoline		0.8	13
Denmark		Fuel Oil light heavy		 0.8 2.5	
Denmark	Copenhagen Fredericksberg	All kinds		1.0	14
West Germany		Gasoline	0.4		12,15
West Germany		Gasoline	0.15		13,15
West Germany		Gasoline		0.3	15,16
West Germany		Fuel Oil extra light heavy		 0.8 2.8	15
West Germany	Northrhine-Westphalia	Furnaces > 8000000 kal/hr		1.8	15
France		Gasoline	0.55		12
France		Gasoline	0.45		17

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

LIQUID FUELS

Location		Fuel Type	Lead Content (g/1)	Sulfur Content (%)	Foot-notes
Country	Province or City				
France		Gasoline		0.7	
France		Gasoline		0.3	18
France		Fuel Oil			
		light		2.0	
		medium		2.0	
		heavy		4.0	
France		Fuel Oil			
		domestic and gas oil		0.7	
France	Paris, zones 1 & 2	Heating Oil			
		if furnace < 350 th/hr		0.5	
Great Britain		Gasoline	0.64		19
Great Britain		Gasoline	0.55		12
Great Britain		Gasoline	0.45		17
Greece		Gasoline			
		premium		0.15	
		regular	0.84	0.15	
		military		0.25	

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

LIQUID FUELS

Location		Fuel Type	Lead Content (g/1)	Sulfur Content (%)	Foot-notes
Country	Province or City				
Greece		Kerosene		0.2	
Greece		Diesel Fuel		0.5	
Greece		Fuel Oil			
		light		3.5	
		heavy		4.0	
Italy		Gasoline		1.1	
Italy		Fuel Oil			
		extra light		2.5	
		light		3.0	
		medium		4.0	
		heavy		4.0	
Italy	Zone A	Kerosene/gasoline		1.1	7
Italy	Zone A	Fuel Oil light		3.0	7
Italy	Zone B	Kerosene/gasoline		1.1	7
Italy	Zone B	Fuel Oil only for ≥ 500000 kcal/hr		3.0	7

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

LIQUID FUELS

Location		Fuel Type	Lead Content (g/1)	Sulfur Content (%)	Foot-notes
Country	Province or City				
Italy		Fuel Oil			
		visc. 75°E/50°C		<4.0	5
Israel		Gasoline	0.42		
Israel		Diesel		0.25	9
Israel		Kerosene		0.4	
Israel		Fuel Oil		0.2	10
Japan		Gasoline	0.3 $cm^3/1$		6
Japan		Fuel Oil		1.0-1.5	
Norway	Oslo	Furnace			
		<700t/yr		0.8	
		>700t/yr		1.2	
Norway	Dramenen	Fuel Oil			
		summer		2.5	
		winter		1.2	
Spain	Madrid	Fuel Oil			
		industrial use		3.0	
		domestic use		2.6	

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

LIQUID FUELS

Location		Fuel Type	Lead Content (g/1)	Sulfur Content (%)	Foot-notes
Country	Province or City				
Sweden		Gasoline	0.7		
Sweden		Gasoline	0.4		19
Sweden		Gasoline	0.15		17
Sweden		Fuel Oil		2.5	
Sweden	Stockholm, Malmö Göteberg	Fuel Oil		1.0	
Switzerland		Gasoline		0.5	
		premium	0.57		
		regular	0.54		
Switzerland		Fuel Oil			
		extra light		0.5	
		light		2.0	
		medium		2.0	
		heavy		3.5	
United Kingdom		Gasoline		1.0	

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

LIQUID FUELS

Location		Fuel Type	Lead Content (g/1)	Sulfur Content (%)	Foot-notes
Country	Province or City				
United Kingdom		Fuel Oil			
		light		3.5	
		medium		4.0	
		heavy		4.5	
		extra heavy		5.0	
United States		Gasoline	0.53		12
United States		Gasoline	0.44		20
United States		Gasoline	0.42		17
United States		Gasoline	0.34		21
Yugoslavia	Sarajevo, zone 1	Fuel Oil		1.7	
Yugoslavia	Sarajevo, zone 2	Fuel Oil		2.5	
Yugoslavia	Sarajevo	Heating Oil		1.0	
Yugoslavia	Zagreb	Heating Fuel		1.0	

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

SOLID FUEL

Location		Fuel Type	Maximum Volatile Matter (%)	Sulfur Content (%)	Foot-notes
Country	Province or City				
Belgium		All Kinds		1.0	23,24
Canada	Montreal	Bituminous Coal		1.0	
Canada	Montreal	Anthracite		0.7	
France	Paris, zones 1 & 2	All Kinds	15		
Spain	Madrid	All Kinds	15	4.0	
Yugoslavia	Sarajevo	Lignite	18	26 g/10,000kcal	
Yugoslavia	Sarajevo	Brown Coal	18	33 g/10,000kcal	22
Yugoslavia	Zagreb	All Kinds	15	0.7	

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

FOOTNOTES

1. Proposed.

2. See Table 9-1

3. See Table 9-2

4. See Table 9-3

5. Only with municipal agreement.

6. If security of the fuel is difficult, the maximum hourly fuel consumption shall be under the following value:

$$= \text{Usual fuel consumption} \times \frac{\text{S - content rate provided by Government}}{\text{S - content rate of fuel consumed usually}}$$

7. This law specifies zones in which special measures can be taken to prevent air pollution.
   Zone A: Central & Northern Italy - towns with 70,000-300,000 inhabitants.
   Southern & insular Italy - towns with 300,000-1,000,000 inhabitants, or areas of particular importance or where adverse conditions exist.
   Zone B: Central & Northern Italy - towns with more than 300,000 inhabitants.
   Southern & insular Italy - towns with more than 1,000,000 inhabitants, or areas where adverse conditions exist.

8. For zone protection, including Bruxelles, Liège, Anvers, Gant and Carolorège.

9. Maximum ash content 0.01%.

10. Maximum ash content for light fuel oil 0.1%, for heavy fuel oil 0.2%.

11. Effective date Aug. 5, 1973 (for sulfur).

12. Effective date Jan. 1974 (for lead).

Table 9 (continued). FUEL STANDARDS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

FOOTNOTES (continued)

13. In preparation (lead).

14. Effective date Jan. 1974 (sulfur).

15. West Germany = Federal Republic of Germany.

16. Proposed for 1978.

17. Effective date Jan. 1976 (lead).

18. Effective date Jan. 1978 (sulfur).

19. Effective date Jan. 1973 (lead).

20. Effective date Jan. 1975 (lead).

21. Effective date Jan. 1977 (lead).

22. If diameter $<$ 20 mm., volatile matter $< 15\%$.

23. For protected areas, which are Bruxelles, Liège, Anvers, Gant and Carolorège.

24. For protected areas it is prohibited to burn lignite, peat, agglomerates and all kinds of refuse.

SULFUR CONTENT IN FUEL, CANADA

Table 9-1 , New Brunswick

	FUEL	% SULFUR (by weight)
OIL	#1	0.5
	#2	0.5
	#4	1.5
	#5	2.0
	#6b	3.75
	#6c	3.75
	COAL	8.0

Table 9-2, Ontario

Schedule

	Column 1	Column 2	Column 3	Column 4
Fuel	Grade or type of Fuel	Maximum Sulphur Content	Maximum Sulphur Content	Maximum Sulphur Content
Oil	1	0.5%	0.5%	0.5%
	2	0.5%	0.5%	0.5%
	4	1.5%	1.5%	1.5%
	5	1.9%	1.75%	1.5%
	6B	2.0%	1.75%	1.5%
	6C	2.0%	1.75%	1.5%
Coal	Bituminous	2.0%	1.75%	1.5%

Table 9-3, Montreal

(b) As of the dates indicated hereunder, the limits for sulphur content in the oils specified are set as follows:

October 1			
1970	1971	1972	Oil
0.6	0.5	0.4	light oil
1.5	1.25	1.0	intermediate oil
2.5	2.0	1.5	heavy oil

Table 10

EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
All Sources	Australia		0.25 g/m^3	250.0	1,2,3,4,5
	Australia	New South Wales	0.40 g/m^3	400.0	4,6,8
	Australia	New South Wales	0.25 g/m^3	250.0	4,7,8
	Australia	Queensland	0.20 $grains/ft^3$	457.6	4,9
	Australia	Victoria	0.20 $grains/ft^3$	457.6	4,9
	Brazil	Santo Andre	mg/m^3	850.0	19
	Brazil	Sao Coetano de Sul	mg/m^3	850.0	19
	Canada	Alberta	0.85 lb/Klb effluent		10,11,12
	Canada	Alberta	0.60 lb/Klb effluent		13,14
	Canada	Manitoba	0.25 $grains/ft^3$	572.0	15
	Canada	Manitoba	0.57 g/m^3	570.0	16
	Czechoslovakia		5.0 kg/hr		20
	East Germany				

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
All Sources					
	West Germany				22
	West Germany		mg/m^3	20.0	23,24,26
	West Germany		mg/m^3	50.0	23,24,26
	Mexico				18
	New Zealand		$0.25\ g/m^3$	250.0	1,2,3,4,5
	Philippines		0.40 grains/ft^3	915.3	17
	Singapore		$0.40\ g/m^3$	400.0	4,9
	Yugoslavia	Sarajevo	mg/m^3	150.0	3
	Yugoslavia	Sarajevo	mg/m^3	300.0	21
	Israel				25

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Combustion of Fuels					
All fuels	Australia	New South Wales	0.40 g/m^3	400.0	29,32,34
All fuels	Australia	New South Wales	0.25 g/m^3	250.0	29,32,35
All fuels	Canada	Manitoba	0.57 g/m^3	570.0	29,53
All fuels	Canada	Manitoba	0.25 grains/ft^3	572.0	29,52
All fuels	Great Britain				79
All fuels 10^6 Kcal/h	Italy		0.25 g/m^3	250.0	100
All fuels - Until Dec. '74	Canada	Alberta	0.85 lb/Klb gas		39,40,41
- After Jan. '75	Canada	Alberta	0.20 lb/Klb gas		39,42,43
< 10 MBTU/hr capacity	Canada	Montreal	0.60 lb/MBTU		51
> 200 MBTU/hr capacity	Canada	Montreal	0.10 lb/MBTU		51
Home Heating	Spain		1.2 g/1000Kcal		

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Smokeless Zone 1	France	Paris	0.43 g/m^3	430.0	
Smokeless Zone 1	France	Paris	0.60 $g/10^6$ cal		
Smokeless Zone 2	France	Paris	0.86 g/m^3	860.0	
Smokeless Zone 2	France	Paris	1.20 $g/10^6$ cal		
Steam Power Plants	United States		0.10 lb/MBTU		
Bark burning					
Kraft pulp mills	Sweden		mg/m^3	250.0	58
Coal burning	Australia		0.25 g/m^3	250.0	29,30,32,33
< 20% ash coal	France		0.35 g/m^3		
> 20% ash coal	France		0.50 g/m^3	500.0	
Boiler	Japan	Special District	0.20 g/m^3	200.0	69
Boiler	Japan	Other Districts	0.40 g/m^3	400.0	

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
>40 MKcal/hr	Mexico		1.0 kg/MKcal		
<40 Mkcal/hr	Mexico		1.5 kg/MKcal		
<1000 kg/h	Switzerland		mg/m^3	75.0	98,99
>1000 kg/h	Switzerland		mg/m^3	150.0	98,99
	Switzerland		mg/m^3	100.0	105
Manually fired	Yugoslavia	Sarajevo	mg/m^3	150.0	29
Pulverized-coal	Yugoslavia	Sarajevo	mg/m^3	150.0	29
Stoker fired					
New plants	Yugoslavia	Sarajevo	mg/m^3	300.0	29
Existing plants	Yugoslavia	Sarajevo	mg/m^3	900.0	29
Mixed burning	Switzerland		mg/m^3	100.0	98

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Oil Burning					
< 300 MW	Denmark		1.5 g/kg oil		111
>300 MW	Denmark		1.0g/kg oil		111
>63 MKcal/hr	Mexico		45.0 g/MKcal		
< 63 MKcal/hr	Mexico		80.0 g/MKcal		
< 100 MW	Denmark		2.0 g/Kg oil		111,112
Oil Burning					
>50 MW	Sweden		1.50 kg/ton oil		66,67
<50 MW (new)	Sweden		1.50 kg/ton oil		66,67
<50 MW (existing)	Sweden		2.00 kg/ton oil		66,67
>300 MW	Sweden		20.0 kg/ton oil		68

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
>1000 kg/hr	Switzerland		mg/m^3	50.0	97
With programmed soot blowing	Switzerland		mg/m^3	150.0	97
With hand driven soot blowing	Switzerland		mg/m^3	200.0	97
<100,000 m^3/hr gas	West Germany		mg/m^3	100.0	113,135
>100,000 m^3/hr gas	West Germany		mg/m^3	50.0	113,135
>25,000 Kcal/hr	Yugoslavia	Sarajevo	mg/m^3	300.0	29
Oil (heavy)					
Boilers					
< 40,000 m^3/hr gas	Japan	Special Districts	0.20 g/m^3	200.0	69
< 40,000 m^3/hr has	Japan	Other Districts	0.30 g/m^3	300.0	
> 40,000 m^3/hr gas	Japan	Special Districts	0.05 g/m^3	50.0	69

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
40,000 to 200,000	Japan	Other Districts	0.20 g/m^3	200.0	
› 200,000 m^3/hr gas	Japan	Other Districts	0.10 g/m^3	100.0	
Solid Fuel	Czechoslovakia				101
	Denmark		mg/m^3	150.0	111
Boilers					
All	West Germany		mg/m^3	300.0	113,115
‹ 500,000 m^3/hr	West Germany		mg/m^3	150.0	113,115
› 500,000 m^3/hr (brown coal)	West Germany		mg/m^3	100.0	113
› 500,000 m^3/hr (anthracite)	West Germany		mg/m^3	150.0	113
All	West Germany	Northrhine,Westphalia	mg/m^3	150.0	108,135
All	West Germany	Northrhine, Westphalia	mg/m^3	300.0	109,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Wood Burning					
Objective Level A	Canada	British Columbia	0.10 grains/ft^3	229.0	29,45
Objective Level B	Canada	British Columbia	0.15 grains/ft^3	343.3	29,46
Objective Level C	Canada	British Columbia	0.25 grains/ft^3	572.0	29,47
Incineration of Refuse					
<300 kg/hr	Australia		0.50 g/m^3	500.0	29,31,32,33
>300 kg/hr	Australia		0.25 g/m^3	250.0	29,31,32,33
Old installations	Australia	New South Wales	0.40 g/m^3	400.0	29,32,34
New installations	Australia	New South Wales	0.25 g/m^3	250.0	29,32,35
Old installations	Canada	Alberta	0.85 lb/Klb gas		39,40,41
New installations	Canada	Alberta	0.60 lb/Klb gas		42,43
<1.5 tons/hr.	West Germany		mg/m^3	100.0	111, 116,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
>1.5 tons/hr	West Germany		mg/m^3	100.0	111, 117,135
<20 tons/day	West Germany		mg/m^3	200.0	43,56,107
>20 tons/day	West Germany		mg/m^3	150.0	71,84
Incineration of liquids	West Germany		mg/m^3	75.0	111, 117,135
<1 ton/hr	France		1.0 g/m^3	1000.0	71,72,128
1 to 4 tons/hr	France		0.60 g/m^3	600.0	71,72,128
4 to 7 tons/hr	France		0.25 g/m^3	250.0	71,72,128
>7 tons/hr	France		0.15 g/m^3	150.0	71,72,128
Continuous furnace					
<40,000 m^3/hr	Japan	Other Districts	0.7 g/m^3	700.0	
>40,000 m^3/hr	Japan	Other Districts	0.2 g/m^3	200.0	
<40,000 m^3/hr	Japan	Special Districts	0.2 g/m^3	200.0	69
>40,000 m^3/hr	Japan	Special Districts	0.1 g/m^3	100.0	69

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Others					
<40,000 m^3/hr	Japan	Other districts	0.70 g/m^3	700.0	
>40,000 m^3hr	Japan	Other districts	0.40 g/m^3	400.0	
<300 kg/hr	New Zealand		0.50 g/m^3	500.0	29,31,32,33
>300 kg/hr	New Zealand		0.25 g/m^3	250.0	29,31,32,33
>15 tons/hr	Sweden		mg/m^3	180.0	58,62,63
<15 tons/hr	Sweden		mg/m^3	250.0	58,62,63
<3 tons/hr	Sweden		mg/m3	500.0	58,62,64
<1 ton capacity	Switzerland		0.20 g/m^3	200.0	71
1 to 5 tons capacity	Switzerland		0.15 g/m^3	150.0	71
>5 tons capacity	Switzerland		0.10 g/m^3	100.0	71
Batch Operation	Japan	Special Districts	0.40 g/m^3	400.0	65
Batch Operation	Japan	Other Districts	0.70 g/m^3	700.0	

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Continuous Operation					
$<40,000\ m^3/hr$ gas	Japan	Special Districts	0.20 g/m^3	200.0	69
$<40,000\ m^3/hr$ gas	Japan	Other Districts	0.70 g/m^3	700.0	
$>40,000\ m^3/hr$ gas	Japan	Special Districts	0.10 g/m^3	100.0	69
$>40,000\ m^3/hr$ gas	Japan	Other Districts	0.20 g/m^3	200.0	
Municipal Incinerators	United States		0.08 $grains/ft^3$	80.0	29
Sewage Sludge Incinerators	United States		mg/m^3	70.0	58,81
Asphalt Plants					
Portable plants	Canada	Alberta	0.40 lb/Klb gas		42,43
Portable plants	Canada	Ontario	167.0 lb/min		49
Stationary plants	Canada	Alberta	0.20 lb/Klb gas		42,43
Hot mixing plants	France		0.150 g/m^3	150.0	129,130

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Hot mixing plants	France		0.800 g/m^3	800.0	129,131
	France		2.0 g/m^3	2000.0	129,132
≥ 200 tons/hr.	France		0.150 g/m^3	150.0	130,133
< 200 tons/hr.	France		0.800 g/m^3	800.0	130,133
≥ 150 tons/hr.	France		0.150 g/m^3	150.0	130,134
< 150 tons/hr.	France		0.500 g/m^3	500.0	130,134
>500 m from built-up area (new)	Sweden		mg/m^3	250.0	58,60
>500 m from built-up area (existing)	Sweden		mg/m^3	500.0	58,60
>1 km from a single house	Sweden		mg/m^3	5000.0	58,61
All Plants	United States		mg/m^3	70.0	58,61
Drying Drum	West Germany		mg/m^3	105.0	88,126,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Asphalt concrete	West Germany		mg/m^3	75.0	88,135
All plants	West Germany	Northrhine, Westphalia	mg/m^3	150.0	106,107,135
All plants	Yugoslavia	Sarajevo	mg/m^3	1000.0	92
Carbon Black mfgr.					
Wet gas filter	West Germany (VDI 2580)		mg/m^3	60.0	83,96
Wash tower	West Germany (VDI 2580)		mg/m^3	50.0	83,135
With thermal afterburner	West Germany (VDI 2580)		mg/m^3	40.0	83,135
Thermal burning in boiler	West Germany (VDI 2580)		mg/m^3	50.0	83,135
Cement Production					
Clinker coolers	United States		0.10 lb/ton feed		

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Crushing, grinding	West Germany		mg/m^3	150.0	85,135
	West Germany		mg/m^3	75.0	113,119,135
	West Germany		mg/m^3	120.0	113,120,135
	West Germany		mg/m^3	150.0	113,121,135
Crushing, grinding	Sweden		mg/m^3	250.0	58
Crushing, grinding - new plants	Great Britain		0.10 grains/ft^3	229.0	
Crushing, grinding - existing plants	Great Britain		0.20 grains/ft^3	457.6	
Dust Handling	Great Britain		0.20 lb/Klb gas	457.6	
Chemical Recovery Ops.	Canada	Alberta	0.20 lb/Klb gas	457.6	42,43
Coal Processing					
Briquetting plants	West Germany (VDI 2292)		0.15g/m^3	150.0	83,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Preparation plants	West Germany (VDI 2293)		0.15 g/m^3	150.0	83,135
Coke Crushing and Screening	West Germany (VDI 2100)		0.15 g/m^3	150.0	83,135
Fluid Catalyst Regeneration	United States		mg/m^3	50.0	58,82
Electrode Manufacture	West Germany		mg/m^3	150.0	113,127,135
Furnaces					
Calcination	West Germany		mg/m^3	150.0	113,135
Calcium Carbide Manufacture	West Germany		mg/m^3	150.0	113,135
Catalyst Regeneration	Japan	Special Districts	0.40 g/m^3	400.0	69
Catalyst Regneration	Japan	Other Districts	0.60 g/m^3	600.0	137
Drying					
Heat treatment					
>40,000 m^3/hr	Japan	Special Districts	0.10 g/m^3	100.0	

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
$<40,000\ m^3/Hr$	Japan	Special Districts	$0.20\ g/m^3$	200.0	
Heat treatment					
$>40,000\ m^3/hr$	Japan	Other Districts	$0.20\ g/m^3$	200.0	
$<40,000\ m^3/hr$	Japan	Other Districts	$0.40\ g/m^3$	400.0	
Others	Japan		Same as Reaction Furnace		
Gas Generating	Japan		Same as Catalyst Regeneration (Furnaces)		
Gas Producing	Japan	Special Districts	$0.10\ g/m^3$	100.0	69,139
Gas Producing	Japan	Other Districts	$0.20\ g/m^3$	200.0	139
Glass Melting					
Tank type	Japan		Same as Reaction Furnace		
Other types	Japan		$0.50\ g/m^3$	500.0	
Petroleum Heating	Japan		Same as Gas Producing		

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Reaction Furnace					
$< 40,000$ m^3/hr gas	Japan	Special Districts	0.20 g/m^3	200.0	69
$< 40,000$ m^3/hr gas	Japan	Other Districts	0.40 g/m^3	400.0	
$> 40,000$ m^3/hr gas	Japan	Special Districts	0.10 g/m^3	100.0	69
$> 40,000$ m^3/hr gas	Japan	Other Districts	0.20 g/m^3	200.0	
Sulfur Combustion-Petroleum Refinery	Japan		Same as Gas Producing		
Kilns					
Cement	Canada	Alberta	0.20 lb/Klb gas		42,43
Cement	West Germany		mg/m^3	150.0	95,135
Cement	France		1.0 g/m^3	1000.0	70,128
Cement	Japan		Same as Reaction Furnace		

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Cement	Spain		0.80 g/m^3	800.0	
Cement	United States		0.30 lb/ton feed		
<1500 tons/day	Great Britain		0.20 grains/ft^3	457.6	78
1500 to 3000	Great Britain		Sliding scale 0.1-0.2		
>3000 tons/day	Great Britain		0.10 grains/ft^3	229.0	78
Cement and Lime					
25 tons/hr product	Czechoslovakia		120.0 kg/hr		
50 tons/hr product	Czechoslovakia		160.0 kg/hr		
100 tons/hr product	Czechoslovakia		250.0 kg/hr		
150 tons/hr product	Czechoslovakia		270.0 kg/hr		
New plants	Sweden		mg/m^3	250.0	58,59
Existing plants	Sweden		mg/m^3	500.0	58

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Ceramic					
Continuous	Japan		Same as Drying, Heat Treatment		
Other types	Japan	Special Districts	0.30 g/m^3	300.0	69
Other types	Japan	Other Districts	0.60 g/m^3	600.0	
All types	West Germany		mg/m^3	150.0	113
Lime	Canada	Alberta	0.20 lb/Klb gas		42,43
Kraft Pulp Mills	Sweden		mg/m^3	250.0	58,59
Kraft Pulp Mills					
Recovery Stack					
Objective level A	Canada	British Columbia	5.0 lb/ADT		44,45
Objective level B	Canada	British Columbia	10.0 lb/ADT		44, 46
Objective level C	Canada	British Columbia	20.0 lb/ADT		44,47

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Other Sources					
Objective level A	Canada	British Columbia	1.5 lb/ADT		44,45,48
Objective level B	Canada	British Columbia	2.0 lb/ADT		44,46,48
Objective level C	Canada	British Columbia	3.0 lb/ADT		44,47,48
Recovery Furnaces-Kraft and Sulfite					
New Plants	Sweden		mg/m^3	250.0	58,59
Existing Plants	Sweden		mg/m^3	500.0	48
Trisodium Phosphate Mfgr.	Japan		Same as Reaction Furnace		
Metallurgical Processes-General					
Metal Heating	Australia		0.10 g/m^3	100.0	30,31,32, 33,110
Metal Heating	Australia	Queensland	0.05 grains/ft^3	114.4	30,32,37
Metal Heating	Australia	Victoria	0.10 grains/ft^3	229.0	30,32

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Metal Heating	Japan		Same as Reaction Furnace		
Metal Heating	New Zealand		0.10 g/m^3	100.0	33
Metal Heating	Singapore		0.20 g/m^3	200.0	30,32
After Jan 1, 1972	Australia	New South Wales	0.20 g/m^3	200.0	30,32,35
Before Jan 1, 1972	Australia	New South Wales	0.25 g/m^3	250.0	30,32,36
Metal Melting	Japan		Same as Reaction Furnace		
Metal Smelting	Mexico				93,94
Sintering Plants	Japan	Special Districts	0.20 g/m^3	200.0	69
<40,000 m^3	Japan	Other Districts	0.40 g/m^3	400.0	
>40,000 m^3	Japan	Other Districts	0.30 g/m^3	300.0	

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Metallurgical Processes					
Ferrous					
Blast Furnace Gas					
Bled	West Germany		mg/m^3	20.0	122,135
Burned	West Germany		mg/m3	90.0	86,122,135
Converters					
Bessemer	Japan		Same as Sintering Plants		
Cupolas					
‹2 ton capacity	France		2.0 kg/ton iron		128
2-10 ton capacity	France		kg/ton iron		73,128
›10 ton capacity	France		kg/ton iron		74,128
Cupolas	West Germany				87,122,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Cupolas					
Upper limit	West Germany (VDI 2288)		2 kg/ton iron		83,87,135
>10 ton/hr capacity	Canada	Alberta	0.20 lb/Klb gas		42,43
<10 ton/hr capacity	Canada	Ontario	75.0 lb/hr		50
>10 ton/hr capacity	Canada	Ontario	25.0 lb/hr		50
New plants	Sweden		kg/ton iron		54
Existing plants	Sweden		kg/ton iron		55
Foundry casting, shake-out and cleaning sand					
>2,500 tons grey iron/yr production	Sweden		mg/m^3	150.0	56,58
<2,5000 tons grey iron/yr production	Sweden		mg/m^3	300.0	57,58

Table 1C (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Furnaces					
Blast	Great Britain		0.20 grains/ft^3	457.6	
Blast	Japan	Special Districts	0.05 g/m^3	50.0	69
Blast	Japan	Other Districts	0.10 g/m^3	100.0	
Blast	Sweden		0.30 kg/ton iron	457.6	
Electric-in foundries	Canada	Ontario	25.0 lb/hr		50
Electric Arc					
New plants	Sweden		0.30 kg/ton steel		
Existing plants	Sweden		0.60 kg/ton steel		
All	West Germany		mg/m3	150.0	113,135
Ferroalloy					
>40% other metals	Japan	Special Districts	0.30 g/m3	300.0	69
>40% other metals	Japan	Other Districts	0.60 g/m^3	600.0	

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Ferroalloy, continued					
< 40% other metals	Japan	Special Districts	0.20 g/m^3	200.0	69
< 40% other metals	Japan	Other Districts	0.40 g/m^3	400.0	
All foundries	West Germany		mg/m^3	100.0	113,135
Ferrochromium					
New plants	Sweden		5.0 kg/ton alloy		
Existing plants	Sweden		10.0 kg/ton alloy		
Ferromolybdenum	Sweden		3.0 kg/ton alloy		
Ferrosilicon manganese-(New)	Sweden		0.30 kg/ton alloy		
Ferrosilicon and Ferrochromium					
New plants	Sweden		15.0 kg/ton alloy		

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Ferrochromium, continued					
Existing plants	Sweden		30.0 kg/ton alloy		
Ferroalloy-Electric furnace					
Ferrochrome - "carbure"	West Germany (VDI 2576)		mg/m^3	250.0	83,135
Ferrosilicon					
15,25 or 45% Si	West Germany (VDI 2576)		mg/m^3	200.0	83,135
75% or 90% Si	West Germany (VDI 2576)		mg/m^3	300.0	83,135
Ferrotungsten	West Germany (VDI 2576)		mg/m^3	150.0	83,135
Silicochromium	West Germany (VDI 2576)		mg/m^3	250.0	83,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Electric furnace, cont.					
Silicon metal, 97% Si	West Germany (VDI 2576)		mg/m^3	300.0	83,135
Ferroalloy-Other furnaces					
Ferrochrom "affine" "raffination"-with ore	West Germany (VDI 2576)		mg/m^3	200.0	83,135
Ferrochrom sura-ffine, silicothermic reaction	West Germany		mg/m^3	150.0	83,135
Iron Smelting-General	France		0.15 g/m^3	150.0	128
Open Hearth	Japan	Special Districts	0.20 g/m^3	200.0	69
Open Hearth $>$ 40,000 m^3/hr	Japan	Other Districts	0.30 g/m^3	300.0	
$<$ 40,000 m^3/hr	Japan	Other Districts	0.40 g/m^3	400.0	

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Open Hearth, cont.					
New plants	Sweden		0.5 kg/ton steel		
Existing plants	Sweden		1.0 kg/ton steel		
Oxygen-steel processes	West Germany		mg/m^3	150.0	88,135
Basic oxygen furnace	United States		mg/m^3	50.0	58,81
Kaldo	Sweden		0.15 kg/ton steel		
LD	Sweden		0.30 kg/ton steel		
Low-alloy steel	Australia	Queensland	0.20 $grains/ft^3$		32,38
Blowing cycle	France		0.12 g/m^3	120.0	128,76
Loading ore	France		0.15 g/m^3	150.0	128
Loading or pouring metal	France		0.12 g/m^3	120.0	128

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Oxygen-steel processes Cont.					
Refining processes	Great Britain		0.05 grains/ft^3	114.4	
Miscellaneous grit and dust	Great Britain		0.20 grains/ft^3	457.6	
Refining Processes-not oxygen	Great Britain		0.20 grains/ft^3	457.6	
Scarfing Operations using oxygen	Great Britain		0.05 grains/ft^3	114.4	
Sintering Plants	France		0.50 g/m^3	500.0	75,128
Sintering Plants	Great Britain		0.05 grains/ft^3	114.4	
Sintering Plants					
Continuous operation	West Germany		mg/m^3	150.0	135
Special cases	West Germany		mg/m^3	300.0	89,135
New plants	Sweden		0.50 kg/ton sinter		

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Sintering Plants, cont.					
Existing plants	Sweden		1.0 kg/ton sinter		
All	Japan	Special Districts	0.2 g/m^3	200.0	69
$>$40,000 m^3/hr	Japan	Other Districts	0.3 g/m^3	300.0	
$<$40,000 m^{3}hr	Japan	Other Districts	0.4 g/m^3	400.0	
Steel Manufacturing	Canada	Alberta	0.20 lb/Klb gas		42,43
Metallurgical Processes					
Non-ferrous					
Alloy Production	West Germany		mg/m^3	75.0	113,135
Aluminum Reduction					
Alumina calcining	West Germany (VDI 2286)		mg/m^3	100.0	83,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Aluminum Reduction, cont.					
Alumina grinding	West Germany (VDI 2286)		mg/m^3	150.0	83,135
Closed furnace	West Germany		12 kg/ton Al		113,135
Open furnace	West Germany		14 kg/ton Al		113,135
Primary reduction	West Germany		mg/m^3	75.0	113,135
Primary reduction	West Germany (VDI 2286)		0.10 g/m^3	100.0	83,135
Secondary recovery					
Rotary Furnaces	West Germany (VDI 2441)				83,104
Other Furnaces	West Germany (VDI 2241)		0.3 g/m^3	300.0	83
Smelters	Great Britain		0.05 $grains/ft^3$	114.4	77

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Brass and Bronze Ingot Production					
Blast cupola furnaces					
>250 kg/hr capacity	United States				81
Electric furnace					
>1000 kg/hr capacity	United States				81
Reverberatory Furnaces					
>1000 kg/hr capacity	United States		mg/m^3	50.0	58,81
Copper Smelting					
Primary					
Refining Furnaces	West Germany (VDI 2101)		0.30 g/m^3	300.0	83,135
Reverberatory Furn.	West Germany (VDI 2101)		0.30 g/m^3	300.0	83,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Primary, cont.					
Shaft Furnaces	West Germany (VDI 2101)		0.30 g/m^3	300.0	83,135
Secondary					
Blast Furnaces	West Germany (VDI 2102)		0.30 g/m^3	300.0	83,135
Converters	West Germany (VDI 2102)		0.30 g/m^3	300.0	83,135
Refining Furnaces	West Germany (VDI 2102)		0.30 g/m^3	300.0	83,135
Copper, Lead and Zinc Refining					
Blast Furnaces	Japan		Same as Reaction Furnace		
Converters					
Bessemer	Japan		Same as Sintering Plants		

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Converters, cont.					
Other types	Japan		Same as Gas Producing		
Drying	Japan		Same as Reaction Furnace		
Melting	Japan		Same as Reaction Furnace		
Roasting and Sintering	Japan		Same as Sintering Plants		
Foundries (non-ferrous)	West Germany		mg/m^3	100.0	113,135
Hydrometallurgical					
Colbalt Calcination	West Germany (VDI 2287)		1.0 g/m^3	1000.0	83,102,135
Inhibition Plant	West Germany (VDI 2287)		0.5 g/m^3	500.0	83,102,135
Roasting Plant	West Germany (VDI 2287)		0.1 g/m^3	100.0	83,102,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Hydrometallurgical, cont.					
Zinc Calcination	West Germany (VDI 2287)				83,102,135
Zinc with Scrubbing	West Germany (VDI 2287)		3.0 g/m^3	3000.0	83,102,135
Zinc with hydroelectric dust extraction	West Germany (VDI 2287)		0.5 g/m^3	500.0	83,102,135
Lead Pigment Manufacture					
Reverberatory and smelting furnaces	Japan		Same as Reaction Furnace		
Lead Smelting					
Reducing Furnaces	West Germany		mg/m^3	400.0	90,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Lead Smelting, cont.					
Refining Furnaces	West Germany		mg/m^3	400.0	90,135
Secondary Smelting	Japan		Same as Reaction Furnace		
Blast cupola or reverberatory furnace					
>250 kg	United States		mg/m^3	50.0	58,81
Pot furnace					
>250 kg	United States		mg/m^3		81
Slag blowing	West Germany		mg/m^3	100.0	90,135
Storage Battery mfgr.	Japan		Same As Reaction Furnace		
Zinc Smelting					
Distillation Process	West Germany		mg/m^3	200.0	91,135

Table 10 (continued). EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Source	Location		Standard		Footnotes
	Country	Province or City	Original Units	mg/m^3	
Zinc Smelting, cont.					
Electrothermal Process	West Germany		mg/m^3	100.0	91,135
Rotary Process	West Germany		mg/m^3	500.0	91,135
Stationary Retorts	West Germany		mg/m^3	400.0	91,135
Crushing, Screening and Milling Operations	West Germany		mg/m^3	75.0	113,135
Phosphate sintering	West Germany		mg/m^3	75.0	113,135
Recovery Furnaces, for partial recovery of solids	West Germany		mg/m^3	150.0	113,118,135
Shredder	West Germany		mg/m^3	150.0	113,135
Wood fiber board Production and particle board	West Germany		mg/m^3	50.0	113,123,135
Wood fiber board Production and particle board	West Germany		mg/m^3	150.0	113,124,125 135

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

1. Other than incinerators burning less than 300 kg/hr and furnaces for heating of metals, except cold blast foundry cupolas

2. At 12% CO_2 for boilers burning solid fuel and incinerators

3. Intended for application to new plants

4. STP at $0^{o}C$ and 1 atmosphere, dry

5. National guidelines for new plants

6. In any unscheduled premise and in scheduled premises for which, applications for approval was made before January 1, 1972

7. In scheduled premises for which application for approval was made after January 1, 1972

8. Except for boilers or incinerators and furnaces for heating of metals, other than cold blast foundry cupolas

9. Except metal heating furnaces

10. Adjusted to weight of gaseous process effluent plus 50% allowances for air leakage

11. Not more than 0.4 lb/1000 lb gaseous effluent retained on 325 mesh screen

12. Rescinded December 31, 1974

13. Effective January 1, 1975. Except for combustion of fuels, portable asphalt plants, chemical recovery operations, cement and lime kilns, cupolas and steel manufacture, which see.

14. Not more than 50% of maximum allowable concentration retained on 325 mesh screen

15. At 68 F, 30"Hg

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

16. At 20°C, 760mm Hg

17. Also see process weight Table 10-1

18. Also see process weight Table 10-2

19. At 25°C and 1 atmosphere

20. Maximum SiO_2 content; 20% Emission rate above which it is necessary to submit a report to the Government; where the discharge is for less than 1 hour, there is a proportionate reduction in emission permissible without such reporting

21. Intended for application to existing plants

22. See Figure 10-1

23. Proposed Federal Standard, See also Fig. 10-2

24. See Table 10-3

25. See process weight Table 10-4

26. West Germany = Federal Republic of Germany

27. See Table 11 (Stack Height Requirements, other than those of Subsidiary Jurisdictions of the United States

28. $K = 10^3, M = 10^6$

29. At 12% CO_2

30. Except cold blast foundry cupolas

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

31. Intended for application to new plants

32. STP at 0°C and 1 atmosphere, dry

33. National Guidelines for new plants

34. In an unscheduled premise and in scheduled premises for which application for approval was made before January 1, 1972

35. In scheduled premises for which application for approval was made after January 1, 1972

36. In scheduled premises for which application for approval was made before January 1, 1972

37. Except oxy-fuel low-alloy steelmaking, up to 30 tons per hour, which produces no fume

38. Up to 30 tons per hour capacity, which produces no fume

39. Adjusted to 50% excess air for products of combustion

40. Not more than 0.4 lb/1000 lb gases and effluent retained on 325 mesh screen

41. Rescinded December 31, 1974

42. Effective January 1, 1975

43. Not more than 50% of maximum allowable concentration retained on 325 mesh screen

44. ADT - Ton of air-dried screened pulp produced

45. New or proposed installations - Average values for a 24 hour period

Footnotes
Table 10

EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

46. Level to which existing installation should be upgraded - average values for a 24 hour period

47. Existing installations - average values for a 24 hour period

48. Total excluding wood-burning boilers and recovery stacks - monthly monitoring

49. Unless lower emission in lb/min is computed from:

$$\frac{(1.67)}{5}\ \frac{(\text{Tons/hr operating rate})\ \text{X}\ (\%\ \text{of material passing 200 mesh sieve})}{(\text{Actual design rate of dryer for 5\% moisture content material})}$$

50. Collection 97% efficient for plus 25μ particles, no water fallout or plume impingement beyond the premises

51. On prorata basis between 10 and 200 million BTU/hr capacity

52. At 68°F and 30"Hg

53. At 20°C and 760 mm Hg

54.
$$0.7 \le \frac{35}{(\text{Annual production in thousands of tons}) + 3} \le 7$$

55.
$$1 \le \frac{50}{(\text{Annual production in thousands of tons}) + 3} \le 8$$

56. Greater than 2,500 tons of grey iron per year production

57. Less than 2,500 tons of grey iron per year production

58. Dry gas

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

59. Electrical precipitators at new kilns should have at least two independent sections, the maximum emission with one section out of operation is 500.0 mg/m^3 STP (dry gas)

60. Applicable to dryers, conveyors, elevators, etc.

61. Accepted only for temporary location

62. At 10% CO_2

63. Space should be left for scrubber

64. Velocity of flue gases greater than 8 m/sec at all operating conditions

65. Distance to built-up area at least 1 km. Permitted only if adopted by regional planning authority

66. Flue gas velocity greater than 8/m/sec at minimum load

67. Also a requirement for maximum soot (combustible particulate) emission

68. Separate flues for each boiler with gas velocity greater than 25 m/sec at full load

69. See Table 10-6

70. 0.15 g/m^3 excess tolerated for a continuous 48 hours or for a 1.0 g/m^3 total of 200 hours/year

71. At 7% CO_2

72. Excess tolerated for a continuous 16 hrs or a total of 200 hrs/year

73. (2.3 X (0.15) X (capacity in tons)Kg/ton iron

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATE MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

74. $\frac{28}{[(4) \times (\text{capacity in tons})] - 5}$ Kg/ton iron

75. 0.15 g/m^3 excess tolerated for a total of 200 hours/year

76. No visible color

77. Fume emission from use of salt as a flux

78. Older kilns - up to 0.5 grains/scf

79. See Table 10-5

80. Total emission not to exceed 50 Kg of dust per hour per stack

81. 10% opacity (except for recombined water) permitted for 2 minutes per hour

82. 20% opacity (except for uncombined water) permitted for 3 minutes per hour; where auxiliary liquid or solid fuels are burned in a incinerator - waste heat boiler, particulate matter in excess of this standard may be permitted, except that the incremental rate of emission shall no exceed 0.18 g/million calories (0.10 lb/million BTU) of heat input attributable to such fuel

83. Verein Deutscher Ingenieure

84. Also VDI 2301 (See footnote 83)

85. Also VDI 2094 (See footnote 83)

86. Also VDI 2099 (See footnote 83)

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATED MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

87. See Figure 10-3

88. Particles smaller than 10μ. Also VDI 2112 (See footnote 83)

89. Where, for instance, raw material is to be used in the form of fine dust and the applicant is able to show that although the present state of technical development doew not permit keeping with the 150 mg/m^3 limit, no objectionalbe effects need be feared in the neighborhood. Also VDI 2095 (See footnote 83)

90. Also VDI 2285 (See footnote 83)

91. Also VDI 2284 (See footnote 83)

92. At least 50 m away from nearest house. Soot content not to produce stain above Bacharach No. 4

93. Smelting furnaces must be equipped with gas cleaning equipment to remove 80% by weight of particulates from exhaust gas

94. There is also a process weight table (See Table 10-2)

95. See Figure 10-4 (Also VDI 2094 - see footnote 83)

96. If diameter $< 30\mu$ emission may be an additional 10 mg/m^3

97. Maximum 4 hour during 24 hour Standard is an average

98. As wet gas

99. $>$ 500 kg/hr, smoke density-monitoring required

100. See Figure 10-5

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATED MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

101. See Table 8-1

102. Recovery after chloridizing roasting

103. Output over 30 tons/day of zinc

104. Total dust emission not to exceed 1% of aluminum production

105. Using 2 or more fuels combined

106. See also Figure 10-6

107. Minimum stack height, 12 m

108. For manual fired with capacity over 20,000 kilocalories/hr

109. For automatic fired with capacity over 20,00 kilocalories/hr

110. Except cold blast foundry cupola

111. Proposed standards for new plants

112. For existing plants to be met by 1988

113. Proposed Federal Standard (status of May 10, 1974)

114. Water tube boilers, dry bed, 13% Volume CO_2

115. Water tube boilers, fluid bed, 14% Volume CO_2

116. With 16% Volume O_2 in gas

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATED MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

117. With 11% Volume O_2 in Gas

118. With 7% Volume O_2in Gas

119. For units without electrostatic precipitator

120. For sources, which are usually equiped with an electrostatic precipitator for technical reasons

121. For sources, which apply electrostatic precipitators, but have a low efficiency because high of electric resistence of particles.

122. Are the same in new proposed regulation

123. Transport system and polishing

124. Drying

125. Other treatment and handling, see Figure 10-7

126. At least 4% Volume CO_2

127. With 8% Volume CO_2

128. New Services

129. Effective January 1, 1974

130. For plants 300 m. from dwellings

131. For plants 300 m. from dwellings, but 1000 m. from agglomeration

Footnotes
Table 10
EMISSION STANDARDS FOR PARTICULATED MATTER IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES.

132. For plants 300 m. from dwellings, but 1000 m. from agglamation

133. Effective January 1, 1977

134. Effective January 1, 1980

135. West Germany = Federal Republic of Germany

136. Also Drying Furnaces other than heat treatment. Electric Furnaces other than ferroralloy or carbide mfgr.; Glass Melting Tank Furnaces, Inorganic Chemical plant Reaction Furnaces, Cement Kilns, Trisodium Phosphate Mfgr., Blast Furnaces other than cupolas, Metal Heating Furnaces, Copper, Lead and Zinc Refining Blast, Drying and Melting Furnaces, Lead Pigment making Reverboratory and smelting furnaces, and Lead Smelting Furnaces in secondary smelting and storage battery mfgr. plants

137. Also continuous ceramic kilns

138. Also Petroleum Heating Furnaces, Sulfur Combustion Furnaces in Petroleum Refineries, Converters other than Bessemer, Copper, Lead and Zinc Refining Converters other than Bessemer.

139. See Figure 11-1 and Figure 11-2, and Table 11-4

TABLE 10-1
MAXIMUM ALLOWABLE DISCHARGE RATES OF DUST AND FUMES - Philippines
(In any one hour from any source whatever)

Process	Max Weight	Process	Max Weight
	Disch/hr (lbs.)	Wt/hr (lbs.)	
50	0.24	3400	5.44
100	0.46	3500	5.52
150	0.66	3600	5.61
200	0.85	3700	5.69
250	1.03	3800	5.77
300	1.20	3900	5.85
350	1.35	4000	5.93
400	1.50	4100	5.01
450	1.63	4200	6.08
500	1.77	4300	6.15
550	1.89	4100	6.22
600	2.01	4500	6.30
650	2.12	4600	6.37
700	2.24	4700	6.45
750	2.34	4800	6.52
800	2.43	4900	6.60
850	2.53	5000	6.67
900	2.62	5500	7.03
950	2.72	6000	7.37
100	2.80	6500	7.71
1100	2.92	7000	8.05
1200	3.12	7500	8.39
1300	3.26	8000	8.71
1400	3.40	8500	9.03
1500	3.54	9000	9.36
1600	3.66	9500	9.67
1700	3.79	10000	10.0
1800	3.91	11000	10.63
1900	4.03	12000	11.28
2000	4.14	13000	11.89
2100	4.24	14000	12.50
2200	4.34	15000	13.13
2300	4.44	16000	13.74
2400	4.55	17000	14.36
2500	4.64	18000	14.97
2600	4.74	19000	15.58
2700	4.84	20000	16.19
2800	4.92	30000	22.22
2900	5.02	40000	28.3
3000	5.10	50000	34.3
3100	5.18	60000	40.0
3200	5.27	or	
3300	5.36	more	

TABLE 10-2

MAXIMUM ALLOWABLE DISCHARGE FOR DUSTS - Mexico

For use where applicable

Process weight Ton/h	Maximum emission permitted, Kg/h		Process weight Ton/h	Maximum emission permitted, Kg/h	
	New industry	Existing industry		New industry	Existing industry
0.025	0.489	0.652	6.0	19.281	25.708
0.050	0.780	1.040	8.0	23.382	31.176
0.100	1.239	1.653	10.0	27.153	36.204
0.200	1.974	2.633	15.0	35.625	47.500
0.300	2.589	3.452	20.0	43.200	57.600
0.400	3.141	4.188	25.0	50.168	66.893
0.500	3.648	4.864	30.0	55.573	74.086
0.750	4.786	6.380	35.0	57.402	76.616
1.000	5.805	7.740	40.0	59.127	78.836
1.250	6.741	8.985	45.0	60.664	80.702
1.500	7.617	10.156	50.0	61.936	82.568
2.000	9.237	12.316	60.0	64.389	85.683
2.500	10.725	14.300	70.0	66.506	87.408
3.000	12.120	16.160	80.0	68.052	90.736
3.500	13.437	17.916	100.0	71.164	94.872
4.000	14.694	19.592	500.0	95.426	127.348
4.500	15.900	21.200	1000.0	107.318	143.084
5.000	17.064	22.752	3000.0	130.080	172.650

Interpolation of above table Process weight-ton/hr(P)	Maximum emission permitted, kg/hr	
	New industry	Existing industry
<28.5	5.805 $P^{0.67}$	7.740 $P^{0.67}$
>28.5	75.648 $P^{0.11}$ -54.42	100.846 $P^{0.11}$ -72.56

For use where above tables are not applicable

Gas volume at the source m.^{3} normal	Concentration new industry mg/m.^{3} normal	Concentration existing industry mg/m.^{3} normal	Gas volume at the source m.^{3} normal	Concentration new industry mg/m.^{3} normal	Concentration existing industry mg/m.^{3} normal
100	840.0	1120.0	2000	324.0	432.0
125	795.0	1060.0	3000	285.0	380.0
150	750.0	1000.0	4000	258.0	344.0
175	714.0	952.0	5000	240.0	320.0
200	684.0	912.0	7500	210.0	280.0
300	600.0	800.0	10000	192.0	256.0
400	543.0	724.0	15000	168.0	224.0
500	510.0	680.0	20000	154.2	205.6
750	444.0	592.0	30000	135.0	180.0
1000	405.0	540.0	40000	123.0	164.0
1500	357.0	476.0	50000	114.0	152.0

Table 10-3

WEST GERMAN DUST CLASSIFICATION

Class I

- Arsenic and its soluble compounds
- Asbestos
- Beryllium and its soluble compounds
- Lead and its soluble compounds
- Cadmium and its soluble compounds
- Chromate
- Chromium Compounds, as far as 6-valent
- Fluorine compounds, as far as soluble
- Cobalt
- Copper fume
- Metallic Nickel and its inorganic compounds
- Phosphoruspentoxide
- Mercury compounds (except cinnabar)
- Selenium and its soluble compounds
- Tellurium and its soluble compounds
- Thallium and its compounds
- Uranium and its compounds
- Vanadium and its compounds

Table 10-3 (cont'd)

WEST GERMAN DUST CLASSIFICATION

Class II

Antimony and its soluble compounds

Barium compounds, as far as soluble

Boron compounds, as far as soluble

Calcium cyanide/Calcium cyanimid

Calcium hydroxide

Calcium oxide/Hydrated lime, Caustic lime

Calcium fluoride

Iodine and its compounds

Quartz dust with particle size <5 μm

Soot

Silver compounds, easily soluble, such as Silver nitrate

Dusts of organic compounds such as z.B. Anthrazan, aromatische Amine, 1,4-Benzochinone, Naphthalin

Dusts of tropic woods (lumber)

Strontium and its compounds

Tar and Tar pitch dusts

Zinc and its compounds

Compounds classified as soluble are those substances which in the respiratory and digestive tracts, on the surface of the skin or the absorbing organs of plants are sufficiently soluble to exert their damaging effect.

TABLE 10-4

ISRAELI EMISSION STANDARDS FOR SUSPENDED PARTICULATE MATTER

1. P = Process Weight Rate (Kg./hr)
2. E = Emission Rate (Kg./hr)
3. The emission-rate is determined on the basis of the process-weight according to 3 different formulas, as follows:

a) if P is less than 5,000 Kg./hr $E = 0.0290\ P^{0.60}$
b) for $5{,}000 < P \leq 27{,}000$ Kg./hr $E = 0.0124\ P^{0.70}$
c) for $27{,}000 < P < 500{,}000$ Kg./hr $E = 3.07\ P^{0.16}$

P (Kg./hr.)	E (Kg./hr.)	Calculation Formula
50	0.30	for $P \leq 5{,}000$ $E = 0.0290\ P^{0.60}$
100	0.46	
200	0.70	
300	0.89	
500	1.21	
1,000	1.83	
1,500	2.33	
2,000	2.77	
3,000	3.54	
5,000	4.81	
8,000	6.69	for $5{,}000 < P \leq 27{,}000$ $E = 0.0124\ P^{0.70}$
12,000	8.89	
15,000	10.40	
18,000	11.80	
22,000	13.58	
27,000	15.68	
35,000	16.38	for $27{,}000 < P$ $E = 3.07\ P^{0.16}$
45,000	17.04	
60,000	17.84	
90,000	19.04	
150,000	20.66	
250,000	22.43	
500,000	25.05	

TABLE 10-5
MAXIMUM ALLOWABLE DISCHARGE RATE OF DISCHARGE OF GRIT AND DUST FROM FURNACES, OTHER THAN INCINERATORS - Great Britain(a)

Schedule 1 - Furnaces rated by heat output
(Boiler furnaces, or indirect heating appliance for gas or liquid which also falls within definition of Schedule 2 furnaces)

Maximum Continuous Rating in pounds of steam per hour (from and at 100°C. (212°F.)) or in thousands of British thermal units per hour (1)	Maximum permitted quantities of grit and dust in pounds per hour	
	Furnaces burning solid matter (b) (2)	Furnaces burning liquid matter (3)
825	1·10	0·25
1,000	1·33	0·28
2,000	2·67	0·56
3,000	4·00	0·84
4,000	5·33	1·12
5,000	6·67	1·4
7,500	8·50	2·1
10,000	10·00	2·8
15,000	13·33	4·2
20,000	16·67	5·6
25,000	20·0	7·0
30,000	23·4	8·4
40,000	30	11·2
50,000	37	12·5
100,000	66	18
150,000	94	24
200,000	122	29
250,000	149	36
300,000	172	41
350,000	195	45
400,000	217	50
450,000	239	54·5
475,000	250	57

Schedule 2 - Furnaces rated by heat input
(Indirect heating appliance, or where material being heated is in contact with combustion gases but does not contribute grit or dust to them)

Heat input in millions of British thermal units per hour (1)	Maximum permitted quantities of grit and dust in pounds per hour	
	Furnaces burning solid matter (b) (2)	Furnaces burning liquid matter (3)
1·25	1·1	0·28
2·5	2·1	0·55
5·0	4·3	1·1
7·5	6·8	1·7
10	7·6	2·2
15	9·7	3·3
20	11·9	4·4
25	14·1	5·5
30	16·3	6·6
35	18·4	7·7
40	20·6	8·8
45	22·8	9·8
50	25	10·9
100	45	16
200	90	26
300	132	35
400	175	44
500	218	54
575	250	57

(a) Applicable to new furnaces November 1, 1971 and to existing furnaces January 1, 1978

(b) Not over 20% of dust >76μ diameter, except that 33% >76μ allowed in Schedule 1 furnaces with maximum continuous rating <16,800 lbs steam/hr, or, <16.8MBTU/hr, and in Schedule 2 furnaces with heat input < 25MBTU/hr

TABLE 10-6
SPECIAL DISTRICTS AND THEIR K-VALUES, JAPAN

(Effective on Jan. 1, 1973)

Special Emission Standards	1	2.92 (0.005)	Tokyo A, Osaka A, Yokohama, Kawasaki, Kobe, Amagasaki etc., Yokkaichi etc., Nagoya etc.
	2	3.50 (0.006)	Chiba etc., Kawaguchi etc., Yokosuka, Fuji Himeji, etc., Kurashiki A, Northern Kyushu
	3	5.26 (0.009)	Kyoto etc., Wakayama etc., Ube, Onoda, Omuta, Karita

(Effective on Jan. 5, 1972)

Notes: 1. The figures in parentheses below K value indicate maximum ground concentration.

See also Table 11 "Stack Height Requirements"

Table 11. STACK HEIGHT REQUIREMENTS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Country	State	Pollutant	Parameters involved in calculations																Footnotes
			Emission rate (weight/time)	Production rate (weight/weight)	Emission conc. (mg/m^3,ppm)	Power input (BTU or equiv.)	Fuel consumption (vol./time)	Effluent volume (vol./time)	Effluent veloc. (m/sec)	Plume rise (m)	Temp. difference (effluent-ambient,°)	Air Quality Standard (mg/m^3,ppm)	Existing Air Quality (mg/m^3,ppm)	Building height (m)	Stack height adj. (m)	Height above floor (m)	Diameter of stack (m)	Regional meteor. cond.	
Australia																			16
Belgium		SO_2																	15
Brazil	S.André, Sao Bernardc de	SO_2					X							X					1
Brazil	Guanabara, Sao Paulo	SO_2												X					2
Czechoslovakia		all substances	X									X							3
East Germany		SO_2, part., gaseous sub.	X							X		X	X		X				4,5
France		part., SO_2	X		X	X		X			X	X			X				6
Great Britain																			18
India	Kampur	Soot														X			7
Iraq		Soot														X			8
Israel			X									X		X					9
Italy		part.			X	X													10
Japan			X						X	X	X				X				11
Sweden		SO_2	X			X		X		X		X		X					12
West Germany		SO_2, part.	X					X				X					X		13
West Germany (VDI 2095)		SO_2																	17
USSR			X					X		X	X	X						X	14

Table 11 (continued). STACK HEIGHT REQUIREMENTS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

FOOTNOTES

1. See Table 11-1 and Table 11-2. Stack has to be more than 5 m. higher than surrounding buildings (50 m. radius).

2. Stack has to be 5 m. higher than existing buildings in the neighborhood (circle of 50 m. radius).

3. See Table 11-3 and Eq. 1.

4. See Table 11-4 and Table 11-5 and Fig. 11-1 and Fig. 11-2 (Particulates).

5. See Table 11-6 for Calculation of ΔH.

6. For SO_2 see Table 11-7 and Eq. 2. For suspended particulates see Eq. 3. Adjustments for natural or artificial obstacles higher than 10 m. (for suspended particulates), 2 m. (for SO_2) and closer than 10 hp are required.

7. No smoke shall be emitted from a furnace at lower altitude than 100 ft. from firing floor.

8. Minimum stack height for brick kiln 140-150 ft.

9. Basis for stack height is 40% of concentration of established air quality standards. Minimum stack height $2\frac{1}{2}$ times the height of surrounding buildings, and at least 2 m. taller than the highest building in the neighborhood.

10. See Eq. 4 and Fig. 11-3.

11. See Eq. 5.

12. See Eq. 6 , Fig. 11-9, Fig. 11-10, Fig 11-11, and Fig. 11-12.

Table 11 (continued). STACK HEIGHT REQUIREMENTS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

FOOTNOTES (continued)

13. Minimum stack height 2 m. over roofcrest (~30° slope). Upper limit 300 m. See Fig. 11-4, but only
    a) For gaseous pollutants.
    b) If pollutants are inert.
    c) If emissions are, considering quantity and temperature, constant.
    d) Flat terrain.
    e) If no structure, natural or artificial, disturbs.
    Details are published in VDI 2289.

14. See Eq. 7, Eq. 8; and Table 11-11, Fig. 11-13, and Fig. 11-14.

15. See Table 11-13.

16. Same as Great Britain.

17. See Table 11-14.

18. See Table 11-15, Table 11-16, Table 11-17, Table 11-18, and Table 11-19; Fig. 11-5 and Fig. 11-6.

EQUATIONS TO TABLE 11

Czechoslovakia	Eq. 1	$e_p = \frac{1}{12}c \cdot k_{max} H^3$
France	Eq. 2 (SO_2)	$h_p = \sqrt{\frac{340 q_1}{C_{M_1}} \sqrt[3]{\frac{1}{R\Delta T}}}$
France	Eq. 3 (susp. part.)	$h_p = \sqrt{\frac{680 q_2}{C_{M_2}} \sqrt[3]{\frac{n}{R\Delta T}}}$
Italy	Eq. 4 (susp. part.)	$q_2 = 0.25\ (1 + A_1)$
Japan	Eq. 5 (SO_2)	$q = K \cdot 10^{-3}\ He^2$
Sweden	Eq. 6 (SO_2)	$H = H_{ref} + \Delta H$
USSR	Eq. 7	$H = \sqrt{\frac{A_2 M_{SO_2} F}{MPC} \sqrt[3]{\frac{N}{V\Delta T}}}$
	Eq. 8	$f = \frac{10^3 w_o^2 D}{H^2 \Delta T}$

Table 11 (continued). STACK HEIGHT REQUIREMENTS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

NOMENCLATURE

A_1 : Constant derived in Fig. 11-3 by given stack height and thermal capacity.

A_2 : a) For Central Asia, Kazakhstan, the Lower Volga region, Caucasus, Siberia, and Far East, 200.
b) For the north and northwest of the European territory of the USSR, Middle Volga Region, Urals, and Ukraine, 160.
c) For the Central part of the European territory of the USSR, 120.

C_{M_1} : Difference between 0.25 mg/m^3 (SO_2) and air quality. If there are no data:
a) 0.01 mg/m^3 in zones little polluted.
b) 0.11 mg/m^3 in medium industrial areas with medium population density.
c) 0.16 mg/m^3 in urban or industrial areas.

C_{M_2} : Difference between 0.15 mg/m^3 and existing air quality. If no measurements exist:
a) 0.05 mg/m^3 for low polluted zones.
b) 0.09 mg/m^3 for medium industrialized and medium populated areas.
c) 0.11 mg/m^3 for urban and heavily industrialized areas.

D : Diameter of the stack.

e_p : Allowable emission rate kg/hr.

F : Coefficient allowing for the influence of the velocity of deposition:
a) $SO_2 = 1$.
b) Susp. part. = 2.

f : Should satisfy the inequality $f < 6$ (f in m/sec^2 deg).

He : Stack height (effective) (m), see Table 11-9.

h_p=H: Stack height (physical) (m).

Table 11 (continued). STACK HEIGHT REQUIREMENTS, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

NOMENCLATURE (continued)

H_{ref}: Determined in Fig. 11-8 and Table 11-10, where Z is the distribution factor.

ΔH : Height adjustment, see Table 11-10.

K : Constant varying with locality, see Table 11-8.

K_{max}: Maximum allowable ambient air concentration.

M : Total emission (g/sec).

MPC : Maximum permissible concentration.

N=n : Number of chimneys, situated less than 2 chimney heights from each other.

q_1 : Theoretic SO_2 emission rate from Table 11-7. **q (Japan) in m^3/hr.**

q_2 : Emission rate (kg/hr) calculated for the particular installation.

q_c : Allowable emission rate gr/m^3, constant $\frac{10^6 m}{hr}$.

R : Effluent volume rate (m^3/hr).

ΔT : Temperature difference (^oC) between stack gas and ambient air.

V : Total volume discharged into the atmosphere.

w_o : Exit velocity from stack.

TABLE 11-1. STACK HEIGHT REQUIREMENT BASED ON FUEL CONSUMPTION, SAO BERNARDO AND SANTO ANDRÉ

Regulating the height of the stacks relating to the quantity of fuel, the SO_2 emission and other hazard to the public health.

Fuel ton per hour	Height (m)
0 - 5	30
5 - 15	45
15 - 50	60
50 - 100	80
100 - ∞	100

TABLE 11-2. STACK HEIGHT REQUIREMENT BASED ON SO_2 EMISSIONS SAO BERNARDO, SANTO ANDRÉ

SO_2 ton per hour	Height (m)
0 - 0,1	30
0,1 - 0,3	40
0,3 - 0,6	60
0,6 - 1,0	80
1,0 - ∞	100

Prohibiting emissions with more than 2000 ppm for SO_2 and 850 mg/m^3 for solid particules (25°C and 1 atm) by source of emission.

TABLE 11-3. STACK HEIGHT REQUIREMENT BASED ON EMISSIONS AND SPECIFIC POLLUTANTS FOR FUEL BURNING, CZECHOSLOVAKIA

Stack height[a] (meters)	Permissible emission in kg/hour		
	From combustion of fuel		Multiplier for K_{max} for other harmful substances[b,c]
	Fly ash	SO_2	
7	2.5	2	4
8	3	2.3	4.6
10	4	3.2	6.4
12	5	4.2	8.4
14	7	5.3	10.6
16	9	6.8	13.6
18	11.4	8.4	16.8
20	14	10	20.0
25	21	13.5	27.0
30	31	22.5	45.0
35	42	32.5	65.0
40	55	46	92.0
45	70	60	120.0
50	84	82.5	165.0
55	110	100	200
60	130	122	245.0
65	160	145	290.0
70	192	170	340.0
75	225	195	390.0
80	260	227	455
85	290	257	514
90	325	295	590
95	360	335	670
100	400	375	750
110	490	900	930
120	580	1425	1130
130	675	1950	1340
140	785	2475	1560
150	900	3000	1790
160	1010	3555	2060
170	1130	4110	2320
180	1270	4665	2600
190	1400	5220	2890
200	1550	5779	3200
220	1820	6355	3840
240	2110	6930	4500
260	2400	7510	5160
280	2700	8085	5820
300	3000	8665	6500

TABLE 11-4. ALLOWABLE EMISSIONS BASED ON STACK HEIGHT POLLUTANT AND AIR QUALITY, EAST GERMANY

Effective stack ht, m	Allowable SO_2 emission (kg/hr) when the given background level concentration exists			S,[b] Other pollutant
	0.4 mg/m^3	0.3 mg/m^3	0.2 mg/m^3	
10	4.26	3.20	2.13	10.65
15	9.59	7.19	4.79	23.96
20	17.04	12.78	8.52	42.60
25	26.63	19.97	13.31	66.56
30	38.34	28.76	19.17	95.85
35	52.19	39.14	26.09	130.46
40	68.16	51.12	34.08	170.40
45	86.27	64.70	43.13	215.66
50	106.50	79.88	53.25	266.25
60	153.36	115.02	76.68	383.40
70	208.74	156.56	104.37	521.85
80	272.64	204.13	136.32	681.60
90	345.06	258.80	172.53	862.65
100	420,00	319.50	213.00	1,065.00
120	613.44	460.08	306.72	1,533.60
140	834.96	626.22	417.48	2,087.40
160	1,090.56	817.92	545.28	2,726.40
180	1,380.24	1,035.18	690.12	3,450.60
200	1,704.00	1,278.00	852.00	4,260.00
220	2,061.84	1,546.38	1,030.92	5,154.60
240	2,453.76	1,840.32	1,226.88	6,134.40
260	2,879.76	2,159.82	1,439.88	7,199.40
280	3,339.84	2,504.88	1,669.92	8,349.60
300	3,834.00	2,875.50	1,917.00	9,585.00

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[a] See also Figure 11-1, 11-2

[b] Allowable emission in kg/hr = S (Ambient air quality standard (MIK_k), in mg/m^3 listed in Table II for "East Germany" for 30-minute averaging time); e.g. for acetaldehyde - MIK_k - 0.03 mg/m^3. Therefore the permissible emission of acetaldehyde from a 100-m stack is 1,065.0 X 0.03 = 31.95 kg/hr.

TABLE 11-5. DEFINITION OF SUSPENDED PARTICULATE MATTER AND SETTLEABLE PARTICULATE MATTER. EAST GERMANY

Dust classification

		Fraction		Total
suspended particulates		$d \leq 10 \mu m$		C_s
setteable particulates	fine dust	$10 < d \leq 63 \mu m$	C_F	C_S
	coarse dust	$d > 63 \mu m$	C_G	

$$C_s + C_F + C_G = 1$$

Suspended particulates

$$e_{zN} = e_{zs} \cdot \frac{1}{C_s} \quad [kg/hr]$$

e_{zN} acceptable total dust emission

C_s suspended particulate portion

e_{zs} acceptable suspended particulate emission value out of Table VII

Setteable particulates

$$e_{zN} = e_{zS} \cdot \frac{1}{C_S} \quad [kg/hr]$$

e_{zS} acceptable setteable particulate emission value out of Table VIII for each value of C_f, and has to be multiplied by q

TABLE 11-5 CONT.
DEFINITION OF SUSPENDED PARTICULATE MATTER AND SETTLEABLE PARTICULATE MATTER, EAST GERMANY

$$C_f = \frac{C_F}{C_F + C_G}$$ (ratio of fine dust in setteable particulates)

	q
Background level 1	0.8
Background level 2	0.6
Background level 3	0.4

TABLE 11-6. STACK HEIGHT ADJUSTMENT, EAST GERMANY

Exit volume (Nm³/h) 10³	Exit velocity $_5$(m/sec)						10					20				
	Exit gas temperature (° C)	20	60	120	180	240	20	60	120	180	240	20	60	120	180	240
1	ΔH [m]	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1
2		–	–	–	–	–	–	–	–	1	1	1	1	1	1	1
3		–	–	–	1	1	–	1	1	1	1	1	1	1	1	1
4		–	–	1	1	1	1	1	1	1	1	1	1	1	1	2
5		–	–	1	1	1	1	1	1	1	1	1	1	2	2	2
6		–	1	1	1	1	1	1	1	1	2	1	2	2	2	2
7		–	1	1	1	1	1	1	1	2	2	1	2	2	2	2
8		–	1	1	1	2	1	1	1	2	2	1	2	2	2	3
9		–	1	1	1	2	1	1	2	2	2	2	2	2	3	3
10		–	1	1	2	2	1	1	2	2	2	2	2	2	3	3
20		1	1	2	3	3	2	2	3	3	4	2	3	4	4	5
30		1	2	3	4	5	2	3	4	5	5	3	4	5	6	7
40		1	2	4	5	6	2	3	5	6	7	4	5	6	7	8
50		1	3	4	6	7	3	4	6	7	8	4	6	7	8	10
60		1	3	5	7	8	2	5	6	8	9	5	6	8	9	11
70		2	3	6	7	9	3	5	7	9	10	5	7	9	10	12
80		2	4	6	8	10	4	6	8	10	11	5	8	10	11	13
90		2	4	7	9	11	4	6	8	10	12	6	8	11	13	14
100		2	5	7	10	12	4	7	9	11	13	6	9	11	14	15
200		3	7	12	17	21	6	10	15	19	26	9	14	18	22	25
300		5	10	17	23	29	8	14	20	25	31	11	18	25	28	34
400		6	12	21	29	37	9	17	24	32	38	13	21	27	34	41
500		7	14	25	35	44	11	19	29	37	46	15	24	32	40	[illegible]
600		8	16	29	40	50	12	22	32	42	52	16	27	36	46	55
700		8	19	31	46	57	13	24	36	48	60	16	29	40	50	62
800		9	21	36	50	65	14	27	40	53	65	19	32	44	55	67
900		10	23	40	55	70	15	29	44	58	70	21	34	48	60	74
1 000		11	24	43	60	77	16	30	47	63	73	22	35	50	65	78

TABLE 11-7. CALCULATION OF H_S BASED ON HEAT INPUT AND EXIT GAS VELOCITY, FRANCE

10^6th = 500 MW
1th = 1000 kcal = 3968.3 BTU

1°) Sulfur content of fuel ≤ 0.1 g/thermie

power input in th/hr		exit velocity (m/sec)					
more than	less than	2	3	4	5	6	7
60	150	1.2	1.2	1.2	1.2	1.2	1.2
150	500	2	1.2	1.2	1.2	1.2	1.2
500	1000	3	2	2	2	2	2
1000	2000	4	3	2	2	2	2
2000	3000	5	4	3	2	2	2
3000	5000	6	5	4	3	2	2
5000	8000	7	6	5	4	3	2
8000		8	7	6	5	4	3

Exit velocity at least 2 m/sec.

2°) Sulfur content of fuel > 0.1 g/thermie, but ≤ 1 g/thermie

power input in th/hr		exit velocity (m/sec)						
more than	less than	2	3	4	5	6	7	8
60	150	2	1.2	1.2	1.2	1.2	1.2	1.2
150	500	3	2	2	2	2	2	2
500	1000	4	3	2	2	2	2	2
1000	2000	5	4	3	2	2	2	2
2000	3000	6	5	4	3	2	2	2
3000	5000	7	6	5	4	3	2	2
5000	8000	8	7	6	5	4	3	2
8000			8	7	6	5	4	3

Exit velocity must be ≥ 2 m/sec, if the heat input ≤ 8000 thermies/hr;

and > 3 m/sec, if the heat input > 8000 thermies/hr.

TABLE 11-7 (CONTINUED). CALCULATION OF H_S BASED ON HEAT INPUT AND EXIT GAS VELOCITY, FRANCE

10^6th = 500 MW
1th = 1000 kcal = 3968.3 BTU

3°) Sulfur content of fuel > 1 g/thermie, but < 2 g/thermie

power input in th/hr	exit velocity (m/sec)	5	6	7	8	9	10
more than	less than						
	1000	4	3	2	2	2	2
1000	2000	5	4	3	2	2	2
2000	3000	6	5	4	3	2	2
3000	5000	7	6	5	4	3	2
5000	8000	8	7	6	5	4	3
8000			8	7	6	5	4

Exit velocity must be > 5 m/sec, if heat input ≤ 8000 thermies/hr; and > 6 m/sec, if heat input > 8000 thermies/hr.

4°) Sulfur content of fuel > 2 g/thermie.

power input in th/hr	exit velocity (m/sec)	7	8	9	10	11
more than	less than					
	2000	5	4	3	2	2
2000	3000	6	5	4	3	2
3000	5000	7	6	5	4	3
5000	8000	8	7	6	5	4
8000			8	7	6	5

Exit velocity must be ≥ 7 m/sec, if heat input is ≤ 8000 thermies/hr; and > 8 m/sec, if heat input is > 8000 thermies/hr.

TABLE 11-8. K-VALUES FOR STACK HEIGHT AND EMISSION, JAPAN

Table 1: Relationship between K Values and Maximum Densities at Ground Level

	Special Standard		General Standard	
Previous K value	2.29	5.26	6.42	22.2
Maximum densities at ground level (ppm)	0.005	0.009	0.011	0.038
New K values	1.17	2.34	3.50	1.75
Maximum densities at ground level (ppm)	0.002	0.004	0.006	0.030

Table 2: General Standards

K Values	Areas
3.5	Tokyo, Yokohama · Kawasaki, Nagoya, Yokkaichi, etc. (6 areas)
4.67	Chiba · Ichihara, Kurashiki · Mizushima, Kitakyushu, etc. (7 areas)
6.42	Sapporo, Muroran, Kashima, etc. (16 areas)
8.76	Tomakomai, Niigata, Shimonoseki, etc. (19 areas)
11.7	Okayama, Hiroshima, Fukuoka, etc. (16 areas)
14.6	Asahikawa, Kushiro, Shizuoka, Nagasaki, Sasebo, Kagoshima, etc. (35 areas)
17.5	Other areas

Special Standards

The number of districts where the special standards, applying to newly built facilities, are enforced was increased from 18 to 28, with the standard K values strengthened from 2.92–5.26 to 1.17–2.34 at the same time. This means that when a thermal power station with 200-meter-high smokestack for 600,000 kilowatts is built in Tokyo where the K value of 1.17 applies, the sulfur content in fuel oil to be burned there will have to be held down below 0.2 percent.

TABLE 11-9. CALCULATION OF CORRECTED HEIGHT OF DISCHARGE, JAPAN

$$He = Ho + 0.65\ (Hm + Ht)$$

$$Hm = \frac{0.795\ \sqrt{Q \cdot V}}{1 + \frac{2.58}{V}}$$

$$Ht = 2.01 \times 10^{-3} \cdot Q \cdot (T - 288) \cdot (2.30 \log J + \frac{1}{J} - 1)$$

$$J = \frac{1}{\sqrt{Q \cdot V}}\ (1460 - 296 \times \frac{V}{T - 288}) + 1$$

In these equations, He, Ho, Q, V and T denote the following values respectively.

He ... Corrected height of discharge outlet (Unit: meter)

Ho ... Actual height of discharge outlet (Unit: meter)

Q ... Rate of effluent gas at 15°C (Unit: m^3/sec)

V ... Emission rate of effluent gas (Unit: m/sec.)

T ... Temperature of effluent gas (Unit: Absolute temperature)

TABLE 11-10. CHIMNEY HEIGHT ADJUSTMENT, SWEDEN

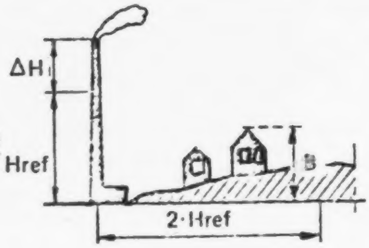
Chimney height adjustment H

The chimney height adjustment ΔH has to be calculated according to item 6.1 as well as according to item 6.2. The greatest of the two values arrived at applies.

Determination of ΔH with reference to existing buildings within a distance of 2 H_{ref} from the chimney.

if $\frac{B}{Href} < 0,3$	then $\Delta H = 0$ m
if $\frac{B}{Href}$ is between 0,3 — 1,0	then $\Delta H = \frac{B - 0,3 \cdot Href}{0,7}$ m
if $\frac{B}{Href} > 1,0$	then $\Delta H = B$ m

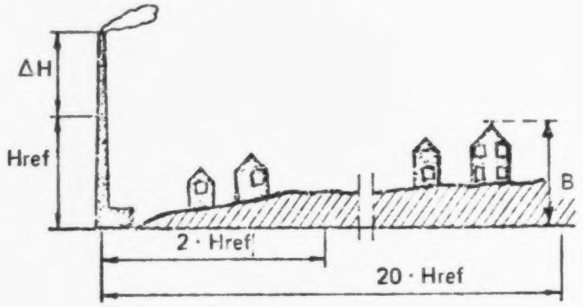
Example:
$Href = 50$ m
$B = 25$ m
$\frac{B}{Href} = 0,5$
$\Delta H = \frac{25 - 0,3 \cdot 50}{0,7}$
$\Delta H = 14$ m



Determination of ΔH with reference to existing buildings situated in an area 2 between two circles; the outer having a radius of 20 H_{ref}, the inner having a radius of 2 H_{ref} and with the chimney as center of both circles.

$\boxed{\Delta H = B}$

Example:
$B = 35$ m
$\Delta H = B = 35$ m



Chimney height H

The chimney height is determined by the formula $\boxed{H = Href + \Delta H}$

TABLE 11-11. EXAMPLE OF STACK HEIGHT CALCULATION USSR

Calculation of Stack Height of Sintering Plant

1	Background concentration of sulfur dioxide - $C_{b.SO_2}$	mg/m^3	0
	Background concentration of dust - $C_{b.d}$	mg/m^3	0
2	Coefficient dependent on the thermal stratification of the atmosphere - A	$sec^{2/3}$ x deg 1/3	160
3	$FM_{SO_2} > FM_d$ $1 \times 1960 > 2 \times 60$	g/sec	1960 120
	The stack height is therefore determined from the emission of sulfur dioxide		
4	Difference between the temperature of the gas-air mixture discharged and that of the surrounding air — ΔT $\Delta T = T_g - T_a = 150 - 30$	deg	120
5	First approximation for minimum stack height (for m = 1) - H $H = \sqrt{\frac{AM_{SO_2}Fm}{MPC}\sqrt[3]{\frac{N}{V\Delta T}}} = \sqrt{\frac{160 \times 1960 \times 1 \times 1}{0.5}\sqrt[3]{\frac{1}{300 \times 120}}}$	m	138
6	First approximation for the parameter f $f = 10^3 \frac{w_0^2 D}{H^2 \Delta T} = \frac{10^3 \times 11^2 \times 6}{138^2 \times 120}$	m/sec^2 deg	0,32

TABLE 11-11 (CONTINUED). EXAMPLE OF STACK HEIGHT CALCULATION USSR

No.	Name, Designation, Formula and Calculation	Units	Value
7	First approximation for the coefficient allowing for the conditions of exit of the gas-air mixture from the stack - m	—	1,05
8	Preliminary value of the stack height - H $H = \sqrt{\frac{AM_{SO_2}Fm}{\text{MPC}} \sqrt[3]{\frac{N}{V\Delta T}}} =$ $= \sqrt{\frac{160 \times 1960 \times 1 \times 1}{0,5} \sqrt[3]{\frac{1}{300 \times 120}}}$	m	138
9	Next largest size of the height of standard stacks - H	m	150
10	Parameter f $f = 10^3 \frac{w_0^2 D}{H^2 \Delta T} = \frac{10^3 \times 11^2 \times 6}{150^2 \times 120}$ ($f<6$, which makes it possible to use the present Instructions)	m/sec^2 deg	0,27
11	Dimensionless coefficient allowing for the conditions of exit of the gas-air mixture from the stack - m	—	1,05
12	Maximum concentration of sulfur dioxide near the underlying surface - c_{mSO_2} $c_{m\,SO_2} = \frac{AM_{SO_2}Fm}{H^2} \sqrt[3]{\frac{N}{V\Delta T}} =$ $= \frac{160 \times 1960 \times 1 \times 1.05}{150^2} \sqrt[3]{\frac{1}{300 \times 120}}$	mg/m^3	0,44
13	Maximum concentration of dust near the underlying surface - $c_{m\,d}$ $c_{m,d} = \frac{AM_d Fm}{H^2} \sqrt[3]{\frac{N}{V\Delta T}} =$ $= \frac{160 \times 60 \times 2 \times 1.05}{150^2} \sqrt[3]{\frac{1}{300 \times 120}}$	mg/m^3	0,03
14	Distance at which the maximum concentration of noxious emissions is reached - x_m $x_m = 20H = 20 \times 150$	m	3000

TABLE 11-12. STACK HEIGHT REQUIREMENTS FOR LARGE STEAM POWER PLANTS, USSR

Fuel consumption (metric tons/hour)	Chimney height (meters)[b]	
	High ash coal (over 5%/1000 cal/kg)	Low ash coal (less than 5%/1000 cal/kg)
0–5	30 (45[c])	30 (45[c])
5–15	45	30 (45[c])
15–50	60	45
50–100	80	60
100–200	100	80
200–300	120	100
over 300	150	120

[a] From Kettner (*9c*).

[b] May use lower stack height when SO_2 removal equipment is used or liquid fuel burned.

[c] When houses 15 meters high are within 200 meters of plant.

Table 11-13
Stack Height Requirements for Plants Emitting SO$_2$[a], Belgium

	Imposed minimum height (meters)	
Degree of dilution of component sulfur gases	For gases or fumes whose temperature is over 150 °C	For gases or fumes whose temperature is under 150 °C
1/12,000	7	10
1/10,000	10	15
1/7,500	14	23
1/5,000	20	35
1/3,000	30	50
1/2,000	40	65
1/1,000	60	100

[a] These requirements apply only to factories roasting or reducing lead or zinc minerals or metals containing lead or zinc.

"Reglement General pour la Protection du Travail," Chapter II. Mesures speciales applicables a certaines industries. Sect. 1. Ind. des Metaux. A. Art. 364–373.

Table 11-14
Stack Height Requirements for SO$_2$ Emissions from Sinter Plants (VDI 2095)

SO$_2$ Emission (kg/hour)	100	500	1000	1500
Minimum stack height (meters)	45	75	90	Special agreement

Table 11-15
Basic Chimney Heights for Miscellaneous Warm Emission of SO$_2$[a] (For Use Above Range of "Memorandum on Chimney Height"[b]), Great Britain

Rate of emission: (tons of SO$_2$ per day)	3.6	7.5	13	21	30	40
Basic chimney height, feet	100	150	200	250	300	340

[a] To allow for interfering nearby tall buildings the following correction has to be applied.

$$H = 0.625A + 0.935B$$

where H = Final chimney height, feet, A = Basic chimney height, feet, B = Building height, feet.

Table 11-16
Basic Chimney Heights for Sulfur-Burning Sulfuric Acid Contact Plants, Great Britain

Production Tons H_2SO_4 per day	Basic Chimney Height, Feet[a]			
	v = 20	v = 30	v = 40	v = 50
100[b]	104	101	99	96
200	142	138	135	132
300	175	167	163	159
400	203	197	192	188
500	226	218	214	210
600	248	241	235	230
700	267	260	253	247
800	286	278	271	266
900	304	294	287	280
1000	319	310	303	296
1100	334	325	317	310
1200	349	340	332	325
1300	363	353	344	337
1400	377	367	358	351
1500	391	381	372	364
1600	405	394	385	376
1700	417	406	397	388
1800	429	418	409	399
1900	441	429	420	409
2000	452	439	430	419

[a] These are based on a calculated 3 minute mean ground level concentration of SO_2 of 20 pphm (parts per 100 million) v = velocity of efflux of gases in feet per second.

[b] Note that the minimum height of chimney for a contact sulfuric acid plant is 120 feet.

Table 11-17
Basic Chimney Heights for Nitric Acid Production Plants, Great Britain[a]

Gas volume at STP (ft³/min)	Gas volume at STP (ft³/min)	Effective height (feet)	Plume rise (feet)	Basic chimney height (feet)
175	14,000	205	27	180
350	28,000	287	39	250
530	42,000	353	47	300
700	56,000	412	55	350
1060	84,000	468	68	400

[a] Basis: 1. Efflux velocity 80 ft/sec. 2. Emission has no thermal buoyancy. 3. Maximum g.l.c. for a 3-minute mean is 0.16 ppm NO_2. 4. Concentration of NO_2 is 2.3 grains/ft³ (2.0 grains SO_2). 5. No allowance made for other sources of emission interfering. 6. Wind speed taken as 20 ft/sec.

Table 11-18
Chimney Heights for Cement Works, Great Britain

Clinker throughput (tons/hour)	Chimney height (feet)[a] Wet process	Semidry process	Dry process
30 and less	200	200	200
60	280	260	240
90	340	310	280
120	390	350	310
240	500	460	415
360	550	500	450

[a] Interpolation between 30 and 360 tons/hour on smooth curves through points in table. Such curves are Fig. 1 of the "notes" referred to in the text.

Table 11-19
[illegible] Chimney Heights for Copper Works, Great Britain[a]

Rate of melting[b] (tons/24 hours)	25	50	100	150	200	250	300
[illegible] chimney height (feet)	72	102	144	177	204	228	250

[a] The process to which these are applicable is the recovery of copper and its alloys from scrap fabricated metal, swarf, or residues. It assumes that satisfactory steps have been taken to prevent emissions of dark smoke and that the chimneys are solely to secure satisfactory dispersion of adventitious zinc oxide fume arising during melting and pouring of the copper alloys. Where there is blowing of the molten metal deliberately to remove zinc the standards for general fume emissions are expected to be attempted.

[b] Rate of melting is the aggregate capacity of all furnaces on the works site calculated to a 24-hour day except on a large works where groups of furnaces are so widely separated as to be able to be considered as occupying different sites.

TABLE 12. VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City and Province	Category	Ringelmann < No.	Not to be exceed more than (min./hr)	Foot-notes
Australia		All stationary fuel-burning sources, shipping, diesel locomotives, air-craft, motor vehicles (diesel or petroleum).	1	-	1,2,7
			1	-	2,7
	New South Wales	Any source in a scheduled premise	1	-	9,8
	New South Wales	Fuel burning except ceramic kilns	3	-	4,5,10,6
	New South Wales	Ceramic Kilns for dark/ or brown face bricks	4	-	11,3
	New South Wales	All other ceramic kilns	3	10	4,11
	Queensland	Industrial plant or fuel burning, except ceramic kilns, vehicles and vessels	2	5	
	Queensland	Ceramic Kilns	2	5	
	Queensland	Ceramic Kilns	3		33
	Queensland	Vessels (continuous emission)	2	5	

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Location		Category	Ringelmann < No.	Not to exceed more than (min/hr)	Foot-notes
Country	City or Province				
	Queensland	Vessels (aggregate emission)	4	6	
	South Australia	Fuel burning except ceramic kilns and vessels	2	-	14
	South Australia	Ceramic Kilns	2	5	13
	South Australia	Vessels (main fuel burning equipment)	2	6	13
	South Australia	Vessels or auxiliary fuel burning equipment	2	3	13
	Victoria	Fuel burning except ceramic kilns	-	-	15
	Victoria	Ceramic Kilns	4	-	15,30
	Western Australia	Fuel burning except vessels	2	4	16
	Western Australia	Vessels not underway	2	10	
	Western Australia	Vessels underway	2	20	
Brazil	Sao Paulo State		2	6	21
	Ganabara State		2	6	21

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City or Province	Category	Ringelman < No.	Not to be exceeded more than (min/hr)	Foot-notes
	Sao Bernardo do Campo		2	15	34
	Santo André				
	Sao Coetano do Sul				
Canada	Alberta	Urban area under 50,000	3	10	4
	Alberta	Urban area of over 50,000	2	10	18,19
	Alberta	Rural area	3	30	4,21
	British Columbia	Wood waste burners	2	-	22
	British Columbia	Wood waste burners	3	-	23
	Manitoba		2	8	23
	Ontario		2	(4 min/30 min)	24
	Quebec, Montreal		1		
	New Brunswick		2	(4 min/30 min)	24
	Newfoundland		2	8	24
Colombia	-		3		35

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City and Province	Category	Ringelmann < No.	Not to be exceeded more than (min/hr)	Foot-notes
France	-				
Great Britain	-		2		
Guam	-		4	3	
Hong Kong	-	All furnaces or ovens	2		27
India	Kampur				29
Ireland	-	Chimney with two furnaces		16 min/8 hr	
		" " three furnaces	2	22 min/8 hr	
		" " four furnaces		27 min/hr	
Ireland	-	Private dwelling home	4	4 consec. min	
			2	8/8 hr	
			4	2/30 min	
Italy	-	Smoke stack height up to 50 in.	3	5	
		Smoke stack height over 50 in.	4		
Italy	-		2	5	
Italy	-		3		
Malta	-		4	4	
Mexico	-	Incinerators	2	3	

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City or Province	Category	Ringelman < No.	Not to be exceeded more than (min/hr)	Foot-notes
Mexico		Other existing	2	5	
Mexico		Others new	2	3	28
Mexico		Vehicles gasoline	-	10 sec.	
Mexico		Vehicles diesel	2	15 sec.	28
Mexico		Locomotives diesel	3	30 sec/30 min	
New Zealand	-	Clean air zones	1	-	
New Zealand	-	Other zones	2	4	
Philippines		-	3	2	
Singapore		-	2	5	17
Spain	Madrid	-	2	-	
West Germany		Solid fuel	1		26
West Germany		Mfgr. electrodes Non-ferrous alloy Aluminum reduction Incineration of liquids	1		36

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City or Province	Category	Ringelmann < No.	Not to be exceeded more than (min/hr)	Foot-notes
West Germany	Northrhine-Westphalia	All fuels	2		
Yugoslavia	Sarajevo	Manually fired > 25,000 kcal/hr	2	-	25
Yugoslavia	Serbia	Stationary Sources	3	4	
Yugoslavia	Serbia	Train & ships	3	3	
Yugoslavia	Zagreb	Solid Fuel	2		
U.S.A.		Fossil fuel fired Generator	20%	2	
U.S.A.		Fossil fuel fired Generator	40%	-	
U.S.A.		Portland Cement Plants	10%	-	
U.S.S.		Petroleum Refineries	30%	3	
U.S.A.		Secondary Lead Smelter	20%	-	
U.S.A.		Sewage Treatment	20%	-	

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

FOOTNOTES

1 - #3 Ringelmann acceptable for lighting-up or soot-blowing.

2 - Intended for application to new plants.

3 - Formed by dry press brick machines.

4 - At no time more than Ringelmann No. 3.

5 - 20 minutes per 24 hours of Ringelmann No. ≤ 3 allowed for lighting-up.

6 - 10 minutes per 8 hours for boilers burning up to 1 ton/hr. of fuel; 20 minutes per 8 hours for 1 to 5 tons/hr; 30 minutes/8 hours for over 5 tons/hr, or over Ringelmann No. 2 for soot blowing.

7 - National Guidelines for new plants.

8 - For which application for approval was made after Jan. 1, 1972.

9 - 10 minutes not darker than Ringelmann No. 3 allowed for lighting-up or soot blowing.

10 - In all unscheduled premises, and in scheduled premises, except ceramic kilns, for which application for approval was made before Jan. 1, 1972.

11 - For which application for approval was made before Jan. 1, 1972.

12 - For lighting-up, Ringelmann ≥ No. 2 for 30 mins/24 hr, and ≥ No. 4 for 2 mins/30 mins.

13 - At no time more than Ringelmann No.3.

14 - See Table 12-1, Dark Smoke ≤ Ringelmann 3, but ≥ Ringelmann 2; Black Smoke > 3.

15 - See Table 12-2.

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

FOOTNOTES

16 - 10 mins/8 hrs of Ringelmann No. 2 allowed.

17 - Not more than three times per day.

18 - At no time more than Ringlemann No. 2.

19 - When starting-up, cleaning or banking fires or soot blowing, 20 minutes per hour of Ringelmann No 2; 3 minutes per hour of Ringelmann No. 3 but no Ringelmann No. 4 is allowed.

20 - When starting-up, cleaning or banking fires or soot blowing, 20 minutes per hour of Ringelmann No. 3 but no Ringelmann No. 4 is allowed.

21 - No Ringelmann No. 4 allowed.

22 - Objective level B - maximum value - 10% of time at Ringelmann No. 3 allowed.

23 - Objective level C - maximum value - 15% of time at Ringelmann No. 4 allowed.

24 - Three minutes of Ringelman No. 3 per 15 minutes allowed for starting new fire.

25 - If exceeded, measurement of particulate content of flue gases can be required.

26 - Also during soot blowing.

27 - Not to exceed 6 mins/4 hrs or 3 minutes continuously at any one time.

28 - Start-up.

29 - See Table 12-3.

30 - Not to be exceeded more than 30 mins/complete cycle.

31 - No dark smoke for more than 4 consecutive minutes.

TABLE 12 (CONTINUED). VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

FOOTNOTES

32 - No black smoke for more than 2 units in any 30 minutes.

33 - Only if reducing atmosphere is required for production.

34 - Or 30 minutes in one day.

35 - Except for 15 minutes in 24 hours.

36 - Proposed Federal Standard (status Oct. 1973).

Ringelmann No.	Opacity (%)
0	0
1	20
2	40
3	60
4	80
5	100

TABLE 12

VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Table 12-1 Queensland, Australia

TABLE OF PRESCRIBED PERIODS OF DARK SMOKE

Plant Served by Chimney	Minutes in Aggregate of Dark Smoke Within Any Period of Eight Hours	
	Without soot-blowing	With soot-blowing
One boiler, furnace or incinerator	10	14
Two boilers, furnaces or incinerators	18	25
Three boilers, furnaces or incinerators	24	34
Four or more boilers, furnaces or incinerators	29	41

Table 12-2 Victoria, Australia

Nature of Plant Served by Chimney.	Minutes in the Aggregate of Dark or Dense Smoke.	
	Column 1. During the Hour following the Commencement of re-kindling of the Fire in any Fireplace connected to the chimney, when such Fire has not previously on that day been re-kindled so as to emit dark or dense smoke in excess of the times set out in Column 2.	Column 2. During any Hour other than the Hour Referred to in Column 1.
One boiler only	10	2
Two boilers only	10	3
Three boilers only	10	4
Any other plant	15	6

VISIBLE EMISSION STANDARDS FOR SMOKE FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Table 12-3 (India)

RINGELMAN	BOSCH
Nº 1 = 20% DENS.	- até 2,7 micro-amperes
" 2 = 40% DENS.	- até 4,8 "
" 3 = 60% DENS.	- até 6,5 "
" 4 = 80% DENS.	- até 8,2 "
" 5 = 100% DENS.	- até 10,0 "

TABLE 13. EMISSION STANDARDS FOR SOOT IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City or Province	Source	Bacharach Shade $\leq$	Other Units	Footnotes
Australia	-	Any boiler or furnace burning oil or gas	3	-	1,2,3
Australia	New South Wales	Any boiler or furnace burning oil or gas	3	-	
France	-	Space heating Smokeless Zones 1 & 2	6	-	
France	Paris	Zone 1 and 2, heating	6	-	
Italy		Thermal Installations	8	-	
Philippines	-	-	3	0.92 g/m^3	
Spain	Madrid	Home heating	6	-	
Sweden	-	New gas turbines-operating more than 500 hr/year	3	-	4
Sweden	-	New gas turbines-operating more than 500 hr/year	5	-	4
Sweden	-	Oil burners greater than 50 MW	3	1.0Kg/ton oil	5
Sweden	-	New oil burners less than 50 MW	3	1.0Kg/ton oil	6

TABLE 13 (CONTINUED). EMISSION STANDARDS FOR SOOT IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City or Province	Source	Bacharach Shade ≤	Other Units	Footnotes
Sweden	-	Existing oil burners less than 50 MW	3	1.5 Kg/ton oil	6
Switzerland	-	Space heating <200 kg/hr	2	-	10
Switzerland	-	New heating <200 kg/hr	1	-	10
Switzerland	Zurich	Home heatings	3	-	11
West Germany	-	Oil heatings using EL & L oil	2	-	13
West Germany	-	Oil heatings using M & S	3	-	13
West Germany	Northrhine Westphalia	<10,000 kcal/hr space oil heating	4	-	12
West Germany	Northrhine Westphalia	Oil heatings 14,000-8000,000 kcal/hr	3	-	
Yugoslavia	Sarajevo	Solid fuel burning <25,000 kcal/hr	200*	-	
Yugoslavia	Sarajevo	Solid fuel burning <25,000 kcal/hr	60*	-	7

* Modified BB (Bacharach-Braun) Scale

TABLE 13 (CONTINUED). EMISSION STANDARDS FOR SOOT IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

Location					
Country	City or Province	Source	Bacharach Shade $\leq$	Other Units	Footnotes
Yugoslavia	Sarajevo	Liquid fuel burning <10,000 kcal/hr	4	-	
Yugoslavia	Sarajevo	Liquid fuel burning -10,000 to 650,000 kcal/hr	3	-	8
Yugoslavia	Sarajevo	Light oil burning >650,000 kcal/hr	2	-	8
Yugoslavia	Sarajevo	Heavy oils >650,000 kcal/hr	3	-	8
Yugoslavia	Sarajevo	Medium or heavy oil ->650,000 kcal/hr	4	-	8
Yugoslavia	Sarajevo	Asphalt Production	4	-	9
Yugoslavia	Zagreb	Liquid fuel burning	3	-	

TABLE 13 (CONTINUED). EMISSION STANDARDS FOR SOOT IN EFFLUENT AIR OR GAS FROM STATIONARY SOURCES OTHER THAN THOSE FROM SUBSIDIARY JURISDICTION OF THE UNITED STATES

FOOTNOTES

1. Other than for lighting-up or soot blowing.
2. Intended for application to new plants.
3. National Guidelines for new plants.
4. Maximum values during steady state operation. Operating time is median for 5 year period.
5. Flue gas velocity greater than 8 m/sec. at minimum load.
6. Same as 5 if residual oil is burned with burners capacity at least 0.5 MW each.
7. 100 units on BB scale permitted for 1 hour per each 10 hours.
8. Other than for first 15 minutes of start-up. When changing load, Bacharach number can be exceeded by 1 unit.
9. Also solid particulate matter limit of 1000 mg/m^3 (See Table 10).
10. Other space heating standards in Table 10 in mg/m^3.
11. Home heating furnaces are periodically controlled by city officials.
12. Filter paper has to be oil free after measurement.
13. EL = extra light, L = light, M = medium, S = heavy

TABLE 14
PROTECTION ZONE STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

Country	Zones	Criteria	Footnotes
Belgium	1 special zone	SO_2 annual mean > 150 ug/m^3	
East Germany	5 special cases	$\frac{\text{actual A.Q.}}{\text{A.Q. standard}}$	4
Fed. Rep. Germany Northrhine-Westphalia	7 classes	type of industry	5
France	2 special zones	#1= whole city #2= central part	1
Iraq	circular zone	distance from brick kiln - residential area (>10 km)	
Israel	6 groups	type of industry	6
Poland	5 classes	type industry, pollutant, local, climate, topography applied technology	7
USSR	to be calculated	distance to residential area, wind frequency, minimal distance; 100 m	2,3
Yugoslavia Sarajevo Zagreb	3 zones	SO_2 levels	

Footnotes
Table 14
PROTECTION ZONE STANDARDS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

1. Special zones can be established in all urban areas, where limit for 150 ug/m^3 is exceeded. At the moment only in Paris, See also Table 14-1

2. Industry classes, see Table 14-2 and Table 14-3

3. See Figure 14-1

4. See Table 14-4

5. See Table 14-5

6. See Table 14-6

7. See Table 14-7

TABLE 14-1
REQUIREMENTS IN PROTECTION ZONES IN PARIS

Prohibited are	Heavy oil	> 2% S	
	Solid fuel	> 15% S; volatile matter	
	Visible emissions	> 6 Bacharach	
	Particulate matter	> 0.6 g/thermies	Zone 1
	Particulate matter	> 1.2 g/th	Zone 2
	Fuel oil other than domestic for installation	100 th/hr	Zone 1
		350 th/hr	Zone 2
	SO_2 ambient as conc.	0.750 mg/m^3, not more than 8 days/yr	
	Susp. particulates	0.350 mg/m^3 (24 hr)	

TABLE 14-2
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

INDUSTRIAL UNDERTAKINGS

Industrial undertakings shall, in accordance with their capacity and type of production, have the following health protection zones.

The chemical industry

Class I: Health protection zone 1000 m wide

1. Production of nitrogen compounds (ammonia, nitric acid, and fertilizers).
2. Production of intermediate products of the aniline dye industry in the benzene and ether series (aniline derivatives, nitrobenzene, alkyl amines, phenol, etc.) where total output is over 1000 tons per year.
3. Production of intermediate products in the naphthalene and anthracene series (1-naphthalenol, anthraquinone, phthalic anhydride, etc.) in amounts exceeding 2000 tons per year.
4. Production of iron (III) bromide.
5. Production of paper pulp and hemi-cellulose by the sulfite, bisulfite, and monosulfite processes involving the combustion of sulfur or sulfur-containing materials; also production of paper pulp by the sulfate process.
6. Production of illuminating gas, water gas, or producer gas in amounts exceeding 50 000 m^3 per hour.
7. Plants for the underground gasification of coal.
8. Production of caustic soda and chlorine by electrolysis.
9. Production of rare metals by the chlorination process (titanomagnetite, etc.).
10. Production of artificial viscose fibre and cellophane.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

11. Production of concentrated mineral fertilizers.
12. Production of organic solvents and oils (benzene, toluene, xylene, naphthalenol, phenol, creosol, anthracene, phenanthrene, acridine, carbazole).
13. Production of arsenic and its inorganic compounds.
14. Production of petroleum gas in amounts exceeding 5000 m^3 per hour.
15. Oil refineries.[1]
16. Production of picric acid.
17. Production of hydrofluoric acid, calcium fluoride, hydrogen fluoride, and other fluorides.
18. Coal processing plants.
19. Plants for the chemical processing of peat.
20. Plants processing fuel shales.
21. Production of mercury.
22. Production of carbon black.
23. Production of sulfuric acid, fuming sulfuric acid, and sulfur dioxide.
24. Production of carbon disulfide.
25. Production of hydrochloric acid.
26. Production of superphosphate.
27. Production of phosphorus (yellow or red) and organophosphorus compounds (parathion, malathion, etc.).
28. Production of chlorinated and hydrochlorinated hydrocarbons.
29. Production of calcium carbide, acetylene from calcium carbide, and acetylene derivates.
30. Production of dimethyl terephthalate.
31. Production of caprolactam.
32. Production of cellulose nitrate fibre.
33. Synthesis of ethanol by the sulfuric acid process or by direct hydration, in plants with departments for concentrating sulfuric acid or carrying out desulfurization.
34. Production of artificial rubber.
35. Production of blowing agents for the rubber industry.
36. Production of amines (methylamine, dimethylamine, diethylamine, triethylamine, etc.).
37. Production of cyanides (calcium, sodium, copper, etc.), dicyanamide, calcium cyanamide).
38. Production of aminoheptanoic aminoundecanoic, aminononanoic, thiopentanoic, and isophthalic acids.
39. Production of sodium nitrite, hydrazine sulfate, hydrazine hydrate, ammonium sulfate, thionyl chloride, and ammonium carbonate
40. Production of acetylene from hydrocarbon gases.
41. Production of dimethyl formamide.
42. Production of ethyl fluid.
43. Production of catalysts.

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[1] Where oil with a sulfur content (by weight) of less than 0.5% is being refined, the health-protection zone is 500 m wide.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

44. Production of products and intermediate products used in the synthesis of polymers.
45. Production of organosulfur dyes (sulfur black, etc.).
46. Production of hydrocyanic acid and its derivatives (acrylates, diisocyanates, etc.).
47. Production of beryllium.
48. Production of synthetic pharmaceuticals.
49. Synthesis of fatty acids and production of higher fatty alcohols by direct oxidation.
50. Mercaptan production and central plants for odorizing gas with mercaptans including facilities for odorant storage.
51. Potassium works.

Class II: Health protection zone 500 m wide

1. Production of urea and thiourea.
2. Natural-gas processing plants.
3. Production of niobium.
4. Production of tantalum.
5. Production of producer gas from coal and peat at a rate of 25 000-50 000 m^3 per hour.
6. Production and processing of natural tars and their residues (pitch, etc.).
7. Production of soda ash by the Solvay process in amounts exceeding 400 000 tons per year.
8. Synthesis of ethanol by the sulfuric acid process or by the direct hydration process in plants lacking a department for concentrating sulfuric acid or, in the case of the second process, a desulfurization installation.
9. Production of ammonium, potassium, sodium, and calcium nitrates.
10. Production of organic chemical reagents.
11. Production of plastics from cellulose esters.
12. Production of corundum.
13. Production of barium chloride with the use of hydrogen sulfide.
14. Industrial hydrogenation of fats (non-electrical process using hydrogen).
15. Production of synthetic fibres (e.g., acetate, polycaprolactam, polyesters, polyvinyl chloride, and polyamides).
16. Production of ultramarine.
17. Production of chromium trioxide and chromates.
18. Production of artificial leather with the use of volatile organic solvents.
19. Production of esters.
20. Production of the products of organic synthesis (ethanol, ethyl ether, etc.) and petroleum gases at a rate of over 5000 m^3 per hour.
21. Production of intermediate products of the aniline dye industry in the benzene and ether series (aniline derivatives, nitrobenzene, alkyl amines, phenol, etc.) where total output is under 1000 tons per year.
22. Production of intermediate products in the naphthalene and anthracene series (1-naphthalenol, anthraquinone, phthalic anhydride, etc.) for a total output of up to 2000 tons per year.
23. Production of vat dyes from all types of azotols and azoamines.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

24. Experimental plants in the aniline dye industry with a total capacity of 2000 tons per year and an output of under 1000 tons per year.
25. Plants for the production of asbestos goods.
26. Production of acetic acid.
27. Production of polyethylene and polypropylene from petroleum by-product gas.
28. Production of food and fodder yeasts and furfural by hydrolysis of wood pulp and agricultural wastes.
29. Production from petroleum by-product gases of ethylene and propylene copolymers and higher polyolefin polymers.
30. Production of tar, liquid and volatile distillates of wood pulp, methanol, acetic acid, turpentine, acetone, and creosote.
31. Production of nicotine.
32. Production of phenolic, polyester, epoxy, and other synthetic resins in amounts exceeding 300 tons per year.
33. Production of synthetic camphor by the isomerization process.
34. Production of melamine and cyanuric acid.
35. Production of polycarbonates.

Class III: Health protection zone 300 m wide

1. Production of bitumen and other products from the distillation residues of coal-tar, crude oil, pine tar (asphalt, polyasphalt, etc.).
2. Production of soda ash by the Solvay process in amounts under 400 000 tons per year.
3. Production of caustic soda by the Löwig and soda-lime processes.
4. Production of mineral salts, with the exception of the salts of arsenic, phosphorus, chromium, lead, and mercury.
5. Production of petroleum gas at a rate of 1000-5000 m^3 per hour and of producer gas at a rate of 5000-25 000 m^3 per hour.
6. Production of plastics.
7. Production of phenolic moulding materials and of moulded or rolled goods from paper and textiles impregnated with phenolic resins, in amounts exceeding 100 tons per year.
8. Production of artificial mineral dyes.
9. Rubber-reclaiming plants.
10. Production of tyres, industrial rubber goods, ebonite and bonded footwear, and the rubber stock used in their manufacture.
11. Chemical processing of rare metal ores for the extraction of salts of antimony, bismuth, lithium, etc.
12. Production of fertilizer mixtures.
13. Production of carbon goods for the electrical industry.
14. Vulcanization of rubber goods using carbon disulfide.
15. Production of acetaldehyde by the vapour-phase process without the use of metallic mercury.
16. Production and bulk storage of ammonia water.
17. Production of polystyrene and copolymers of styrene.
18. Production or organosilicon varnishes, liquids, and resins.

TABLE 14-2
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

19. Plant for distributing gas to the mains network, including installations for odorizing the gas with mercaptans.
20. Production of sebacic acid.
21. Production of vinyl acetate, polyvinyl acetate, polyvinyl alcohol, polyvinyl emulsions, and acetals.
22. Production of polyfluorethylene resins.
23. Production of plasticizers.
24. Production of food and fodder yeasts by the hydrolysis of wood pulp and agricultural wastes (sunflower husks, maize stalks, straw, etc.).
25. Production of iso-octyl alcohol, butyric anhydride, butyric acid, foam plastic, vinyltoluene, polyvinyltoluene, polyurethane for casting, polyformaldehyde, reclaimed organic acids (acetic, butyric, etc.), formaldehyde, urotropin, penta-erythritol, methylpyrrolidone, polyvinylpyrrolidone, and of derivatives of petroleum gas, where production is less than 5000 m^3 per hour.
26. Production of lacquer, spirit varnishes, printer's varnish, varnishes for the rubber industry, insulating varnishes, etc.
27. Production of drying oils.
28. Production of phenolic, polyester, polyamide, epoxy, and other synthetic resins in amounts of up to 300 tons per year.
29. Production of metal carbonyls.
30. Production of methionine.
31. Production of antibiotics by biological methods.

Class IV: Health protection zone 100 m wide

1. Production of paper from prepared cellulose and rags.
2. Production of casein plastic and other protein plastics (amino plastics, etc.).
3. Production of glycerol.
4. Production of enamels from condensation resins.
5. Soap production.
6. Processing of animal organs.
7. Production of producer gas from coal and peat in amounts of up to 5000 m^3 per hour.
8. Chemical processing of rare metal ores to extract the salts of molybdenum, tungsten and cobalt.
9. Production of phenolic moulding materials and of moulded or rolled goods from paper or textiles impregnated with phenolic resins, where production does not exceed 100 tons per year.
10. Industrial hydrogenation of fats (using hydrogen produced electrolytically).
11. Salt making (evaporation and rolling).
12. Production of potassium salts for pharmaceutical purposes.
13. Production of rubberized footwear without the use of organic solvents and of rubber stock without the use of carbon black.
14. Production of liquid fertilizers.
15. Production of vanillin and saccharin.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES
FOR INDUSTRIAL UNDERTAKINGS
AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

16. Production of petroleum gas at a rate of up to 1000 m^3 per hour.
17. Production of moulding materials (phenol-formaldehyde, urea-formaldehyde, melamine-formaldehyde, organosilicon, etc.).
18. Production of artificial leather from polyvinyl and other resins without the use of organic solvents.
19. Production of polyvinyl plasticizers, vinyl plastics, plastic separators for polyurethane foam, aerated plastics, glass-fibre-reinforced plastics and expanded polystyrene.
20. Production of alkaloids and galenicals.
21. Production of natural mineral dyes (chalk, ochre, Prussian red, etc.).
22. Production of perfumes.
23. Production of tanning extracts.
24. Production of goods from synthetic resins, polymers, and plastics by various methods (moulding, extrusion, injection moulding, vacuum-forming, etc.).
25. Production of synthetic detergent powders.

Class V: Health protection zone 50 m wide

1. Production of inorganic reagents in plants without a chlorine shop.
2. Vulcanization of rubber without the use of carbon disulfide.
3. Production of carbon dioxide and "dry ice".
4. Production of artificial pearls.
5. Production of goods from plastics and synthetic resins (mechanical operations only).
6. Production of photochemicals (photographic plates, cine-film, and photographic paper).
7. Production of fertilizers using carbon dioxide.
8. Depots for cleaning, washing, and steaming-out tanks used for the transport of crude oil and petroleum products.
9. Production of various types of paper and cardboard from imported semi-processed materials; production of wood pulp and hemi-cellulose with the use of soda or monosulfite in plants where prepared monosulfite is used, spent lyes and other compounds are not burnt, and liquid sulfur dioxide is not used.
10. Production of printing inks.
11. Compounding of pharmaceutical preparations.
12. Production of condensed and liquified products from the separation of air.

The metallurgical, machine-tool, and metal-working industries

Class I: Health protection zone 1000 m wide

1. Plant for secondary processing of non-ferrous metals (copper, lead, zinc) at a rate of over 3000 tons per year.
2. Coking.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

3. Iron-smelting where the total volume of the blast furnaces is voer 1500 m^3.
4. Plants carrying out all processes of iron and steel production, with an output of over a million tons of iron and steel per year.
5. Steel-smelting by the open hearth and converter techniques in works equipped to process wastes (milling of Thomas slag, etc.), where output of the basic product exceeds one million tons per year.
6. Smelting of non-ferrous metals (including lead, tin, copper, and nickel) direct from ores and concentrates.
7. Production of aluminium by electrolysis of fused aluminium salts (alumina).
8. Smelting of special types of pig iron; production of ferroalloys.
9. Plants for the sintering of ferrous and non-ferrous metal ores and pyrites cinders.
10. Production of alumina.
11. Production of cast-iron sections in amounts exceeding 100 000 tons per year.

Class II: Health protection zone 500 m wide

1. Magnesium production by any technique except the chloride process.
2. Production of non-ferrous metals in amounts exceeding 2000 tons per year.
3. Plants for secondary processing of non-ferrous metals (copper, lead, zinc, etc.) in amounts from 2000 to 3000 tons per year.
4. Iron-smelting, where the total volume of the blast furnaces is between 500 and 1500 m^3.
5. Plants carrying out all processes of iron and steel production, with an output of up to one million tons per year of iron and steel.
6. Steel-smelting by the open hearth, converter, and electrosmelting techniques in works equipped to process wastes (milling of Thomas slag, etc.), where output of the basic product is less than one million tons per year.
7. Production of lead accumulators.
8. Milling of Thomas slag.
9. Production of antimony by pyrometallurgical methods.
10. Production of cast-iron sections in amounts from 20 000 to 100 000 tons per year.
11. Production of zinc, copper, nickel, and cobalt by electrolysis of their aqueous solutions.

Class III: Health protection zone 300 m wide

1. Concentration of metals without hot processing.
2. Production of lead-covered or rubber-insulated cable.
3. Production of cast-iron sections in amounts from 10 000 to 20 000 tons per year.
4. Plants for secondary processing of non-ferrous metals (copper, lead, zinc, etc.) in amounts up to 1000 tons per year.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

5. Production of non-ferrous metals in amounts from 100 to 2000 tons per year.
6. Production of mercury and apparatus containing mercury (mercury rectifiers, thermometers, valves, etc.).
7. Iron-smelting, where the total volume of the blast furnaces is less than 500 m^3.
8. Casting of non-ferrous metal sections under pressure with an output of 10 000 tons of castings per year (9500 tons of aluminium pressure castings and 500 tons of zinc castings).
9. Production of metal electrodes with the use of manganese.

Class IV: Health protection zone 100 m wide

1. Manufacture of electrical engineering machines and apparatus (dynamos, condensers, transformers, projectors, etc.), where foundries and similar installations are small.
2. Production of bare cable.
3. Manufacture of boilers.
4. Production of metallic electrodes.
5. Metal-working factories for cast-iron, steel (in amounts up to 10 000 tons per year), and non-ferrous (in amounts up to 100 tons per year) castings.
6. Production of antimony by electrolysis.
7. Type foundries where lead may be emitted into the air.

Class V: Health protection zone 50 m wide

1. Metal-working industries using heat treatment, but with no foundries.
2. Production of alkali accumulators.
3. Type foundries.
4. Production of instruments for the electrical engineering industry (lamps, headlights, etc.) in factories without foundries and not using mercury.
5. Production of hard alloys and refractory metals in plants containing no departments for chemical ore processing.
6. Printing works.

Mining of ore minerals and non-metallic minerals

Class I: Health protection zone 1000 m wide

1. Plant for the extraction of crude oil, where 0.5-1 ton of hydrogen sulfide is discharged per day and the oil has a high proportion of volatile hydrocarbons.
2. Mining of lead ores, mercury, arsenic, and manganese.
3. Plants for the extraction of natural gas.

Class II: Health protection zone 500 m wide

1. Plants for the extraction of phosphorite, apatite, or pyrites without chemical processing.

2. Plants for the extraction of fuel shales.
3. Mining of hard coal, brown coal, and other coals.
4. Open-cast mining of iron and complex metallic ores (with the exception of lead ores, mercury, arsenic, and manganese), and the quarrying of rock of grades VIII-XI.

Class III: Health protection zone 300 m wide

1. Plants for the extraction of crude oil, where the amount of hydrogen sulfide discharged is less than 0.5 tons per day and the volatile hydrocarbon content of the oil is low.
2. Quarrying of rock of grades VI-VII: dolomites, magnesites, asbestos, tars and asphalts.
3. Open-cast mining of metalloid compounds.
4. Production of briquettes from powdered peat and coal.
5. Hydraulic mines and wet-dressing plant.

Class IV: Health protection zone 100 m wide

1. Mining of rock salt.
2. Peat-cutting.
3. Mining of metal and metalloid ores in pits, except for lead ores, mercury, arsenic, and manganese.

The building industry

Class I: Health protection zone 1000 m wide

1. Production of Portland, Portland-slag, and other cements in amounts exceeding 150 000 tons per year.
2. Kilning of magnesite, dolomite, and fire-clay in shaft or rotary kilns.

Class II: Health protection zone 500 m wide

1. Production of gypsum (alabaster).
2. Production of asbestos.
3. Production of lime in factories with shaft or rotary kilns.
4. Production of Portland, Portland-slag, and other cements in amounts up to 150 000 tons per year.
5. Production of asphalt concrete in mobile plants.

Class III: Health protection zone 300 m wide

1. Production of artificial fillers (clay and other fillers).
2. Production of glass wool and slag wool.
3. Production of local cements (calcined-clay cement, Roman cement, slag-gypsum cement, etc.) in amounts up to 5000 tons per year.
4. Production of tar paper and rubberoid roof-sheeting material.
5. Production of asphalt concrete in permanent plants.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

Class IV: Health protection zone 100 m wide

1. Production of artificial stone and concrete articles.
2. Hoists for lifting cement and other dust-producing building materials.
3. Production of building materials from heat-and-power station wastes.
4. Production of articles from asbestos cement.
5. Production of polymerized building materials.
6. Production of porcelain ware and earthenware.
7. Production of red brick and silica brick.
8. Production of ceramic and refractory ware.
9. Production of stoneware.
10. Glass manufacture.

Class V: Health protection zone 50 m wide

1. Quarrying of rock without blasting and plants for working natural stone.
2. Production of plaster goods.
3. Production of reedboard, strawboard, etc.
4. Pottery production.

The wood industry

Class I: Health protection zone 1000 m wide

1. Chemical processing of wood and the production of charcoal.

Class II: Health protection zone 500 m wide

1. Production of charcoal by the retort process

Class III: Health protection zone 300 m wide

1. Plants for impregnating wood in order to preserve it.
2. Production of articles from wood fibre using artificial resins as binders (chipboard, fibreboard).

Class IV: Health protection zone 100 m wide

1. Production of wood fibre.
2. Saw mills and factories producing plywood and wood parts for buildings of standard design.
3. Shipyards for the construction of wooden craft.
4. Production of wallpaper.
5. Production of vitamin-enriched pine-needle flour, chlorophyll-carotene pastes and pine extracts.

Class V: Health protection zone 50 m wide

1. Wood-working, manufacture of furniture, parquet, and boxes.
2. Plants for the protective treatment of wood by impregnation with aqueous solutions (other than arsenic salts).
3. Production of articles from wood fibre (chipboard, fibreboard, cement-fibrolite board, etc.).

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

4. Production of barrels using prepared staves.
5. Production of bast matting.
6. Boatyards for the construction of launches and small craft.

The textile industry and light industry

Class I: Health protection zone 1000 m wide

1. Plants for the primary processing of cotton which have departments for treating seed with organomercury coumpounds.

Class II: Health protection zone 500 m wide

1. Plants for the chemical treatment and processing of textiles with carbon disulfide.
2. Production of artificial leather, sheeting, oilcloth, and plastic for shoe soles where volatile organic solvents are used at the rate of up to 2 tons per day.

Class III: Health protection zone 300 m wide

1. Plants for continuous impregnation of textiles and paper with oil-varnish, oil asphaltum, bakelites, and other varnishes, where the rate of production of impregnated material exceeds 300 tons per year.
2. Plants for the primary processing of vegetable fibres (flax, hemp, cotton, etc.).
3. Plants for the treatment and processing of textiles without the use of carbon disulfide (leatherette, leather substitute, etc.).
4. Bleaching, dyeing, and finishing plants.
5. Production of polyvinylchloride sheeting reinforced on one side, blended polymer sheeting, rubber for shoe soles, and reclaimed rubber, where solvents are used at the rate of one ton per day.

Class IV: Health protection zone 100 m wide

1. Plants for the continuous impregnation of textiles and paper with oil-varnish, oil-asphaltum, bakelite, and other varnishes, where the rate of production of impregnated material is less than 300 tons per year.
2. Manufacture of cottonin.
3. Silk filatures.
4. Manufacture of mixture fabrics.
5. Manufacture of hemp cordage, rope, and twine.
6. Manufacture of yarn and textiles from wool, cotton, and linen in mills with dyeing and bleaching departments.
7. Production of fancy leather board with polymer finishes, where organic solvents are used at a rate of up to 0.5 tons per day, and rubber for shoe soles without the use of volatile organic solvents.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

Class V: Health protection zone 50 m wide

1. Manufacture of cotton, linen, and woollen yarns and textiles in mills without dying and bleaching departments.
2. Manufacture of knitwear and lace.
3. Silk weaving.
4. Clothing factories.
5. Manufacture of carpets and artificial astrakhan.
6. Production of insole board from leather and leather-cellulose fibre without the use of solvents.
7. Footwear manufacture.

Processing of animal products

Class I: Health protection zone 1000 m wide

1. Factories manufacturing glue from hide remnants, bone refuse, and other animal wastes and residues.
2. Production of industrial gelatin from bone refuse, scrapings, hide remnants, and other animal wastes and residues in plants where such material is stored under cover or in the open air.
3. Salvaging plants for processing animal or fish wastes and residues into fats, animal feed, fertilizers, etc.

Class II: Health protection zone 500 m wide

1. Plants for roasting and grinding bones.
2. Fat rendering plants producing industrial fats and greases in amounts exceeding 30 tons per year.

Class III: Health protection zone 300 m wide

1. Plants for preparing belts for dyeing (sheepskin, tanned skeepskin, furs) and the production of suede, morocco leather, kid. etc., with facilities for processing wastes.
2. Plants for processing raw cattle hides; raw-hide dressing and tanning with facilities for processing wastes.
3. Production of industrial fats and greases in amounts up to 30 tons per year.
4. Wool-washing plants.
5. Storehouses for wet-salted and unprocessed hides (storage capacity for over 200 hides).

Class IV: Health protection zone 100 m wide

1. Production of skeletons and visual teaching aids from animal carcasses.
2. Feed concentrate plants using animal and food wastes.
3. Felt manufacture.
4. Production of high grade gelatin from fresh bones kept for as short a time as possible under refrigeration in special stores.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES
FOR INDUSTRIAL UNDERTAKINGS
AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

5. Plants for processing hair, bristle, down, feathers, horns, and hooves.
6. Production of gut and catgut.

Class V: Health protection zone 50 m wide

1. Manufacture of patent leather.
2. Manufacture of leather goods.
3. Manufacture of brushes from bristle and hair.
4. Depots for the temporary storage of wet-salted hides (up to 200), where no processing is carried out.
5. Felting shops.

Food processing and the production of flavourings

Class II: Health protection zone 500 m wide

1. Stockyards to hold over 1000 head of livestock after shipment.
2. Abattoirs for cattle and sheep, meat-packing plants, and meat-packing houses, with stockyards for holding animals before slaughter that, at maximum capacity, represent three days' supply of meat.
3. Plants for melting down blubber from marine animals.
4. Plants for washing intestines.
5. Disinfection and cleansing stations for washing down trucks in which livestock have been shipped.

Class III: Health protection zone 300 m wide

1. Beet-sugar refineries.
2. Factories producing feed antibiotics.
3. Fisheries.
4. Stockyards holding up to 1000 head of livestock after shipment.
5. Plants for the production of enzymes by the surface culture technique.
6. Slaughterhouses for small animals and poultry.

Class IV: Health protection zone 100 m wide

1. Flour mills, hulling mills, grain shellers, and feed concentrate mills.
2. Grain elevators.
3. Coffee-roasting plants.
4. Cheese-making factories.
5. Production of oleomargarine and margarine.
6. Meat-curing plants.
7. Production of alcohol for the food industry.
8. Fish canneries and fish filleting plants with departments for processing wastes; fish-packing plants.
9. Plants for the production of enzymes by submerged fermentation.
10. Beet-sugar refineries without facilities for storing beet pulp.
11. Cornflour and corn syrup factories.
12. Production of albumin.
13. Vegetable processing (drying, salting, or pickling) plants.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

14. Production of dextrin, glucose, and molasses.
15. Starch production.

Class V: Health protection zone 50 m wide

1. Confectionery factories.
2. Production of table vinegar.
3. Tobacco-curing plants and cigarette factories.
4. Tea-blending plants.
5. Distilleries.
6. Oil mills (vegetable oils).
7. Canneries.
8. Vegetable storehouses.
9. Sugar refineries.
10. Brandy distilleries.
11. Breweries (without malthouses).
12. Pasta factories.
13. Milk and dairy product factories.
14. Sausage factories with an output of over 3 tons per shift.
15. Factory-type bakeries.
16. Factories preparing foodstuffs.
17. Refrigerating plants with a capacity of over 600 tons.
18. Plants for the initial stages of wine-making.
19. Wine-making establishments.
20. Production of grape juice.
21. Production of fruit and vegetable juices and non-alcoholic beverages.
22. Plants for the production of commercial malt and yeast.
23. Fish-curing plants.

Heat-and-power stations and boiler installations

Health protection zones for heat-and-power stations and boiler installations shall be determined in accordance with the dispersion in the air of the harmful substances contained in the wastes discharged, as calculated on the basis of the official publications on standards.

Sanitary engineering installations and municipal undertakings

The width of health protection zones for sanitary engineering installations and municipal undertakings shall be established on the basis of the sanitary classification and production capacity of such installations and undertakings.

Class I: Health protection zone 1000 m wide

1. Controlled unimproved tips for liquid and solid domestic wastes of organic origin.
2. Fields where septic-tank contents are ploughed in or spread.

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

Class II: Health protection zone 500 m wide

1. Burial-places for cattle.
2. Salvaging plants for the disposal of animal carcasses and condemned meat.
3. Principal centres for salvage and incineration of refuse.
4. Improved tips for solid wastes.
5. Centralized composting areas for solid wastes and refuse from population centres.

Class III: Health protection zone 300 m wide

1. Cemeteries.
2. District centres for salvage and incineration of refuse.
3. Principal collection centres for utilizable wastes.
4. Cattle burial-places with carcass destruction chambers.
5. Outfall works.
6. Greenhouses and hothouses making use of refuse.
7. Composting of refuse containing neither manure nor fecal matter.

Class IV: Health protection zone 100 m wide

1. District collection centres for utilizable wastes.
2. Depots for vehicles used for refuse collection in towns.
3. Places for the temporary storage of scrap material without processing.
4. Servicing stations for heavy goods vehicles and for buses belonging to the urban transport system.

Class V: Health protection zone 50 m wide

1. Servicing stations for motor vehicles (cars, except for privately owned cars, and buses outside the urban transport network).

Health protection zones for sewage treatment installations

Types of installation	Width of zone (in metres) for installations with treatment capacity of (m^3/day)			
	< 200	200-5000	5000-50 000	50 000-280 000
Installations for mechanical and biological treatment of sewage with sludge beds for digested sludge, and installations with sludge beds alone	150	200	400	500
Installations for mechanical and biological treatment of sewage and thermomechanical processing of sludge in closed premises	100	150	300	400
Filter beds	200	300	500	1000
Sewage farms	150	200	400	1000
Waste stabilization ponds	200	200	—	—

Notes

Health protection zones for sewage treatment installations with a capacity exceeding 280 000 m^3/day and for installations not using approved sewage-treatment and sludge-processing

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

techniques shall be established by joint decision of the Central Sanitary and Epidemiological Board of the Ministry of Health of the USSR and the State Committee for Construction of the USSR.

Filter beds with an area of up to 0.5 ha and installations for mechanical and biological treatment of sewage with a capacity of up to 50 m^3/day shall have a health protection zone 100 m wide.

Municipal sewage farms with an area of up to 1 ha shall have a health protection zone 50 m wide.

Underground filter beds with a capacity of 15 m^3/day shall have a health protection zone 15 m wide.

Where dwelling houses are located downwind of the treatment installations, the health protection zones may be enlarged, but to no more than twice the width indicated in the table. They may be reduced in the case of a favourable wind distribution.

The width of the health protection zones for sewage pumping stations shall be :
(*a*) 20 m for a treatment capacity of 50 000 m^3/day;
(*b*) 30 m for a treatment capacity exceeding 50 000 m^3/day.

Pumping stations with a capacity of up to 200 m^3/day are permitted a health protection zone 15 m wide.

The widths for health protection zones indicated in the table also apply to food production plants.

Health protection zones for agricultural undertakings and agricultural premises

Types of undertaking or premises	Width of health protection zone (metres)
Farms :	
stud farms and rabbit farms	100
cattle farms (all types), sheep farms, and fur farms	300
poultry farms	300
pig farms	500
Poultry factories	1000
Vetinerary surgeries	200
Hothouses and greenhouses :	
heated biologically (using manure)	100
heated biologically (using refuse)	300
using electrical, steam, or water heating systems	no standard
Premises for preparing feed :	
without the use of food wastes	no standard
with the use of food wastes	100
Undertakings and premises for the initial treatment and processing of milk, fruit, or vegetables	no standard
Garages and yards for the repair, servicing, and parking of cars and agricultural machinery, with a capacity of over 200 machine units	100
Storehouses for fruit, vegetables, potatoes, grain, other agricultural produce, and other stores	50
Buildings for housing animals and poultry kept for private use in residential areas	50
Storehouses :	
for mineral fertilizers	200
for mineral fertilizers and up to 20 tons of pesticides	200
for pesticides :	
up to 20 tons	200
20-50 "	300
50-100 "	400
100-200 "	500
300-500 "	700
over 500 "	1000

TABLE 14-2, CONT.
HEALTH PROTECTION ZONES FOR INDUSTRIAL UNDERTAKINGS AND OTHER SOURCES OF ENVIRONMENTAL POLLUTION, USSR

Warehouses

Health protection zones for warehouses shall be established in accordance with the existing design standards for the various types of warehouses as approved or accepted by the State Committee for Construction of the USSR.

TABLE 14-3
WIDTH OF SANITARY PROTECTION ZONE (IN METERS) REQUIRED FOR COAL-FIRED POWER PLANTS BURNING OVER 3 METRIC TONS OF FUEL PER HOUR (U.S.S.R.)

Fuel ash content % \ Fuel consumption[b]	75% Collection efficiency					90% Collection efficiency					
	3–12.5	12.5 25.0	25.0 50.0	50.0 100.0	100.0 200.0	3 – 12.5	12.5 25.0	25.0 50.0	50.0 100.0	100.0 200.0	200.0 300.0
Up to 10	100	100	300	500	500	100	100	100	300	500	500
10–15	100	300	500	500	500	100	100	300	300	500	500
15–20	100	300	500	500	1000	100	100	300	300	500	1000
20–25	100	300	500	1000	1000	100	100	300	300	500	1000
25–30	100	300	500	1000	1000	100	300	300	500	1000	1000
30–45	300	500	1000	1000		100	300	300	500	1000	1000

[a] From Kettner (*9c*).

[b] Range in metric tons per hour.

[c] Special requirements.

TABLE 14-4
AREA CLASSIFICATION -
Democratic Republic of Germany

R- $\left\{\frac{\text{Actual Air Quality}}{\text{Air Quality Standard}}\right\}$	Class Number	Class Description	Ambient SO_2 Concentration level - mg/m^3	Q- Actual Ambient Conc. Multiplying Factor for Settleable Dust Computation
≤ 0.5	1	Slightly polluted	0.4	0.8
$>0.5 - \leq 1.0$	2	Polluted	0.3	0.6
$>1.0 - \leq 1.5$	3	Over polluted	0.2	0.4
$>1.5 - \leq 2.5$	4	Considerably over polluted	-	-
>2.5	5	Heavily over polluted	-	-

Table 14-5
TEMPORARY LIST OF PROTECTION DISTANCES BETWEEN EMITTING INDUSTRIES AND RESIDENTIAL AREAS, WEST GERMANY - NORTHRHINE-WESTPHALIA

2000 m	Power plants
	Nonferrous smelters and recasting works
	Large chemical works including petrochemical
	Rayon staple and rayon manufacturing
	Bituminous road building material plants
	Shredders
	Rendering plants
1500 m	Blast furnaces and steel mills
1200 m	Petroleum refineries
1000 m	Hammer mills
	Steel construction using rivets and container manufacturing
	Incinerators
800 m	Animal feed-lots
	Iron, steel, and annealing foundries
	Machinery and automobile manufacturing
	Animal shelters
500 m	Quarrying and processing of stone, slate and other minerals
	Cement kilns
	Lime, gypsum, and chalk industries
	Plants for production of mineral insulation and filters as from slag production
	Rolling mills
	Forges and pressing works
	Steel construction without rivetting
	Varnish and lacquer industries,
	Glass manufacture
	Paper manufacturing without cellulose production
	Leather manufacturing
	Weaving mills (relative to threading, processing and sewing)
	Starch and fodder industries
	Packing plants,
	Forwarding companies and warehouses
300 m	Manufacture of bricks and other ceramic products
	Manufacture of artistic stone products
	Mortar and concrete shipping facilities
	Roofing-paper industries
	Production of rubber products
	Woodworking industries
	Spinning and yarn mills (including rending and processing)

TABLE 14-6
BUFFER ZONE STANDARDS, ISRAEL

Group	1	2	3	4	5	6
Distance	0	50	150	500	1000	2000

Classification of Trades, Industries and Occupations into Sanitary Protection Zones

1. Abattoir; (up to 300 heads/day)	3
2. Abattoir, poultry; (incl. cleaning & dressing of poultry and of by-products)	4
3. Abattoirs, regional; slaughter, preparation and preservation of meat	4
4. Accumulators; manuf.	4
5. Acetylene, synthetic; manuf.	4
6. Air conditioners & air coolers; manuf.	2
7. Airport; domestic	6
8. Airport; international	6
9. Alfalfa mixed feed; manuf.	3
10. Alkoloid; manuf.	3
11. Alloy, ferrous; manuf.	4
12. Alloy, hard & heat resistant metal; manuf. by methods other then chemical treatment of ores	3
13. Aluminum; manuf. (electrolysis)	6
14. Aluminum, extruded shape; manuf.	3
15. Aluminum-Pipes; manuf.	3
16. Ammonia; manuf.	5
17. Ammunition; manuf.	6
18. Ammunition & explosives; manuf. & reprocessing	6
19. Ammunition & explosives; storage (national scale)	6
20. Ammunition & explosives; storage (district scale)	5
21. Animal pens; (300-3000 heads)	5
22. Animal pens; (up to 300 heads)	4
23. Animal food and feed milling; manuf.	3
24. Animal & fish waste processing plants; (not incl. manuf. of feather-meal, fish-meal and cod liver oil)	5
25. Asbestos products; manuf	4
26. Asbestos & asphalt construction products; manuf.	4
27. Asphalt; manuf.	4
28. Automobile; manuf. & assembly	4
29. Automobile, motorcycle & scooter spare parts; manuf.	2
30. Aviation industry (incl. engine overhaul & testing)	6
31. Bag, briefcase, suitcase & case; manuf. (over 20 wrkrs.)	2
32. Bag, briefcase, suitcase & case; manuf. (5-20 wrkrs.)	1b
33. Bag, briefcase, suitcase & case; manuf. (up to 5 wrkrs.)	1a
34. Balances & balance spare parts; manuf.	2
35. Bathing suit; manuf. (over 20 wrkrs.)	2
36. " " (upto 20 wrkrs.)	1b
37. Battery; manuf.	4
38. Battery, reconditioning	3

39.	Beef & poultry products; packing	1a
40.	Beer Brewing and Malt; manuf. (incl. beer, malt-beer & malt concentrates)	3
41.	Bagel & pretzel bakery	1b
42.	Belts, brassiers & corsets; manuf. (over 5 wrkrs)	1b
43.	" (up to 5 wrkrs.)	1a
44.	Bicycle, baby carriages, cars & other motor vehicles, n.m.e.; repair, (incl. car washing & glazing)(over 20 wrkrs.)	2
45.	" (up to 20 wrkrs.)	1b
46.	Binderies (over 5 wrkrs.)	1b
47.	" (up to 5 wrkrs.)	1a
48.	Biscuit, cookies & waffles; manuf. (incl. chocolate-coated waffles & salted bakery goods)	2
49.	Bitumen & similar products (manuf. from coal-tar, naphta and pine-oil)	4
50.	Bolt, nut & screw; manuf. (over 20 wrkrs)	3
51.	" (up to 20 wrkrs.)	2
52.	Boneblack & bonemeal; manuf	5
53.	Bread bakeries	2
54.	Bromine and bromine compounds; manuf.	5
55.	Brooms & brushes; manuf. (incl. hair processing)	1b
56.	Cake confectionery (pastry); manuf.	1a
57.	Calcium-carbide; manuf.	5
58.	Camphor, synthetic; manuf. (by isomerisation)	4
59.	Candle; manuf.	2
60.	Carbon-black; manuf.	5
61.	Carbon-disulfide; manuf.	5
62.	Carbon-monoxide (liquified), and Dry-Ice (solid carbon-dioxide); manuf.	5
63.	Cardboard; manuf. (over 10,000 ton/yr.)	5
64.	" (up to 10,000 ton/yr)	4
65.	Cardboard, wavy; manuf.	3
66.	Cardboard & paper box; manuf. (over 20 wrkrs.)	2
67.	" (5-20 wrkrs.)	1b
68.	" (up to 5 Wrkrs.)	1a
69.	Cardboard & paper products, n.m.e; manuf. (incl. plates, goblets, cardboard & paper cups, card indexes, envelopes, classifiers, cardboard & paper files, paper bags, cardboard egg packings, etc.) (over 20 wrkrs.)	2
70.	" (5-20 wrkrs.)	1b
71.	" (up to 5 wrkrs.)	1a
72.	Carpentry, for house building; manuf. (incl. manuf. of shutter-boxes, lattices, doors, windows, parts for shacks, etc.) (over 5 wrkrs.)	2
73.	" (up to 5 wrkrs.)	1b
74.	Carpentry; n.f.i. (incl. carpentries not specializing in a particular line of products)(over 5 wrkrs.)	2
75.	" (up to 5 wrkrs.)	1b
76.	Carriages, baby; manuf.	2
77.	Cattle sheds and pens	3
78.	Ceramics, artistic; manuf. (over 20 wrkrs.)	2
79.	" (5-20 wrkrs.)	1b
80.	" (up to 5 wrkrs.)	1a

81.	Ceramics, household utensils; manuf.	2
82.	Ceramic Products; manuf. (for electrical use)	3
83.	Cereals, (other than wheat); grinding & crushing, (incl. grinding & crushing of rice, corn, etc.)	2
84.	Chandeliers & lamps; manuf. (incl. lampshades & table-lamps)	2
85.	Chemical combines	6
86.	Chicken Breeding; (over 1000 chickens in non-agricultural communities)	3
87.	Chlorine; liquified, storage in containers of one ton or more.	6
88.	Chlorine; manuf.	5
89.	Chlorophenols (and derivatives of similar toxicity) manuf.	6
90.	Chocolate & sweets; manuf. (incl. cocoa spread, cocoa-butter, chocolate powder & various sweets, such as candy, marmalade, nouget, etc.)	2
91.	Cigarette; manuf.	2
92.	Clay products for construction; manuf. (incl. clay bricks, tiles, hangers, etc.)	2
93.	Clothing, n.f.i.; manuf.	1b
94.	Clothing products, n.m.e.; manuf. (incl. handkerchieves, veils, ties, lace-ribbons, etc.) (over 20 wrkrs.)	2
95.	" (5-20 wrkrs.)	1b
96.	" (up to 5 wrkrs.)	1a
97.	Clothing, underwear, knitted; manuf. (over 5 wrkrs.)	2
98.	" (up to 5 wrkrs.)	1b
99.	Clothing, underwear, n.m.e. (except knitted); manuf. (over 5 wrkrs.)	1a
100.	" (up to 5 wrkrs.)	1b
101.	Clothing, upper, children; manuf. (except leather & knitting)	1a
102.	Clothing, upper, fur & leather (incl. gloves); manuf. (over 20 wrkrs.)	2
103.	" (up to 20 wrkrs.)	1b
104.	Clothing, upper, knitted; manuf. (over 5 wrkrs.)	2
105.	" (up to 5 wrkrs.)	1b
106.	Clothing, upper, men; manuf. (except leather & knitting)	1a
107.	Clothing, upper, mixed (except leather & knitting); manuf. (incl. upper clothing for men, women & children, as well as working garments)	1a
108.	Clothing, upper, n.m.e; manuf. (incl. plants for sewing robes, shirts & pajamas)(over 20 wrkrs.)	2
109.	" (5-20 wrkrs.)	1b
110.	" (up to 5 wrkrs.)	1a
111.	Clothing, upper, women; manuf. (except leather & knitting)	1a
112.	Coal tar & resins; manuf.	5
113.	Cod liver oil & fish meal; manuf.	6
114.	Coffee, instant; manuf.	4
115.	Coffee, roasting; grinding & packaging plant	2
116.	Coffee, roasting; grinding & packaging (within a shop)	1a
117.	Cold storage depot	2
118.	Colours, organic (sulfur basis); manuf.	5
119.	Combustible-gas tanks (compressed gas volume of 10,000 tons or more)	6

120.	Combustible liquids; storage (over 20,000 liter)	4
121.	Combustible liquified-gases; stor. (over 5,000 kg.)	5
122.	Compressors, refrigeration, pneumatic & hydraulic equipment; manuf. (incl. manuf. of air & gas compressors, refrigeration compressors, fire extinguishers, etc., manuf. & repair of spare parts for this equipment)	2
123.	Concrete-asphalt; manuf.	4
124.	Concrete-blocks; manuf.	2
125.	Concrete pipes; manuf.	3
126.	Concrete products, n.m.e.; manuf. (incl. pavement stones, concrete window sills, pedestals, garbage boxes, tiles,etc)	2
127.	Cooling installations & commercial refrigerators; manuf. (incl. equipment for refrigeration installations & repair of spare parts & accesories)	2
128.	Cosmetics; manuf.	3
129.	Cotton-Ginning; (incl. separation of fibers from grains & cleaning of fibers)	4
130.	Cotton spinning and weaving mill	2
131.	Cotton-wool, industrial (for upholstery, processing of sea weed); cleaning and processing	2
132.	Cotton-wool, medicinal & textile bandage; manuf.	1b
133.	Cutlery; manuf.	3
134.	Cutting-equipment; manuf. (drills, knives, etc.)	3
135.	Cynamide; manuf.	5
136.	Dental & medical laboratory equipment; manuf. (over 20 wrkrs.)	2
137.	" (up to 20 wrkrs.)	1b
138.	Diamond, cutting; (over 5 wrkrs.)	1b
139.	" (up to 5 wrkrs.)	1a
140.	Diamond, n.m.e.; manuf. (incl. diamond powder & diamonds for industry) (over 5 wrkrs.)	1b
141.	" (up to 5 wrkrs.)	1a
142.	Diamond, polishing: (over 5 wrkrs.)	1b
143.	" (up to 5 wrkrs.)	1a
144.	Die; manuf. (incl. metal-forms)(over 20 wrkrs.)	3
145.	" (up to 20 wrkrs.)	2
146.	Drug; manuf. (Human & veterinary drugs, incl. vitamins & materials used in dentistry)	3
147.	Dry cleaning laundry	2
148.	Edible-Oil; manuf. and refining	3
149.	Electric broilers; manuf.	2
150.	Electric cable and wire; manuf. (incl. isolated cables & wires coated by plastic & telephone cables)	3
151.	Electric household appliance; repair (incl. radio, television, tape recorders, electric boilers, etc.)	2
152.	Electric household appliances & machines, n.m.e.; repair (incl. mixers, washing machines, refrigerators, air conditioners)	2
153.	Electric installation & lighting equipment, n.m.e.; manuf. (incl. lighting & heating bodies, voltmeters, electric boards, control panels, electric meters, reflectors, industrial heating furnaces, etc.)	2

154.	Electrode; manuf.	3
155.	Electronic instruments for control, science & medicine; manuf. (incl. electronic control systems & repair of instruments used for control & in science, medicine & industry)	2
156.	Elevators & escalators; manuf. (incl. spare parts)	2
157.	Embroidery work, buttonhole making & plisse; (over 20 wrkrs.)	2
158.	" (5-20 wrkrs.)	1b
159.	" (up to 5 wrkrs.)	1a
160.	Fat, cooking; manuf.	3
161.	Fat and lard; manuf.	3
162.	Feather cleaning and processing; manuf.	3
163.	Feather-meal; manuf.	6
164.	Ferromanganese; manuf.	5
165.	Ferrous metals; manuf. (over 2,000 ton/yr)	4
166.	" (up to 2,000 ton/yr.)	3
167.	Fertilizers, carbonaceous; manuf.	4
168.	Fertilizers, liquid; manuf.	4
169.	Fertilizers, mineral; manuf. of concentrates	5
170.	Fertilizers, nitrogenous; manuf. & stor. (over 250 ton)	5
171.	Fertilizers, synthetic: formulations	3
172.	Fibre, synthetic; manuf. from acetate & ammonia	4
173.	Fibre, synthetic; manuf. from viscose rayon	5
174.	Fibre, synthetic; raw material for manuf.	4
175.	Firecrackers; manuf.	4
176.	Fish-processing; (incl. fish-drying)	4
177.	Fish processing; (incl. smoking, freezing, preparation of fish-salads, preserving fish and additives)	3
178.	Flameable & hazardous materials; stor.	3
179.	Fluorine compounds; manuf.	5
180.	Food additives; manuf. (incl. synthetic sweeteners, vanillin, etc.)	2
181.	Food packing n.m.e.; (incl. coffee substitutes, imitation vinegar, table salt packing, roasted & peeled food seeds & puffed cereals)	1a
182.	Food product, n.m.e.; manuf. of spices, baking powders, ice cream powder, custard powder, jello, yeast, aromatic essences; incl. coffee sustitutes & imitated vinegar)	2
183.	Footwear, rubber; manuf. (incl. sheets for soles, soles & other parts)	3
184.	Foundry, ferrous metals; (over 20,000 ton/yr.)	4
185.	" (up to 20,000 ton/yr.)	3
186.	Fruits and vegetables; drying	2
187.	Fruit & vegetable; freezing	3
188.	Fruit & vegetable preserves; manuf. (incl. juice canning & bottling, canned sauce & soup concentrates, deserts & jams, concentrated juice & syrup, vegetable pickling)	3
189.	Fuel stor; big scale,(tanks of 30,000-100,000 m^3)	5
190.	Fuel Stor; medium scale,(tanks of 10,000-30,000 m^3)	4
191.	Fuel stor: small scale (tanks up to 10,000 m^3)	3
192.	Furs: processing	4

193.	Furniture; coating (incl. polyester coating & painting) (over 5 wrkrs.)	2
194.	" (up to 5 wrkrs.)	1b
195.	Furniture, metal; manuf.	2
196.	Garage, motor vehicle; (over 20 wrkrs.)	2
197.	" (up to 20 wrkrs.)	1b
198.	Gas, compressed; manuf. (contained in standard balloons, incl. compressed hydrogen & oxygen & acetylene having a pressure of less than 1.5 atmospheres)	3
199.	Gas, natural; wells	5
200.	Gas stoves & ranges; manuf.	3
201.	Gasoline service stations; (types 6 and 7): type 6-fuel supply only for all motor vehicles; & kerosene for household use type 7-same as type 6 but in addition also services & lubrication to all types of vehicles, & a buffet or restaurant	3
202.	Gasoline service stations; (types 3,4, and 5): type 3-sale of gasoline, engine oil, mixed fuel for engines & kersene for household use type 4-as type 3 & in addition diesel oil for taxi cabs type 5-as type 4 & in addition installations for lubrication, car washing, tire repair & buffet	2
203.	Gasoline service stations; (types 1 and 2): type 1-sale of gasoline & engine oil only type 2-as type 1 & in addition mixed fuel for engines	1b
204.	Gelatine, technical; manuf. from animal wastes	5
205.	Glass, hollow & hollow glass products; manuf. (incl. neon tubes, light bulbs, bottles, glasses, etc.)	2
206.	Glass, n.m.e.; Manuf. (incl. laboratory glass articles)	2
207.	Glass wool, rock-wool & other insulating materials; manuf.	3
208.	Glue; manuf. from gelatine, bones, fats, skin or other animal waste	5
209.	Glue; manuf. (incl. P;V,I,-glue, Urea-glue, formaldehyde, melamine-glue; not including bones-glue & gelatin-glue)	3
210.	Glycerine; manuf.	3
211.	Goldsmitting; (incl. holy-vessels manuf. by goldsmitting)(over 5 wrkrs.)	1b
212.	" (up to 5 wrkrs.)	1a
213.	Gravel and tar mix; manuf.	4
214.	Grindstone; manuf.	3
215.	Hardened vegetable oil; (using hydrogen, not manuf. by electrolysis)	3
216.	Hat; manuf. (over 20 wrkrs.)	2
217.	" (5-20 wrkrs.)	1b
218.	" (up to 5 wrkrs.)	1a
219.	Honey-products; manuf.	1a
220.	Household utensils, plastic; manuf. (incl. boxes, buckets, screws, covers, combs & other injection & press products)	2
221.	Household utensils & electric cooking appliances; manuf. (incl. grillers, toasters, electric spoons, pots, plates, etc.)	2
222.	Hydrochloric acid; manuf.	5
223.	Hydrocyanic acid; stor. & use (over 5,000 kg.)	5

224. " (500-5,000 kg.)	4
225. Hydrofluoric acid; manuf.	5
226. Hydrofluoric acid: stor. (over 15 ton)	6
227. Ice; manuf.	2
228. Ice box, household; manuf.	2
229. Icecream; manuf. (incl. ice cream bars)	1a
230. Incinerators; (non-regional, for solid waste)	3
231. Insulation paints & varnish; manuf. (up to 500 ton/yr incl. automobile paints)	3
232. Iron ore; mining, using explosives	5
233. Iron ore; smelting (blast furnace-over 50,000 ton/yr.)	5
234. " (blast furnace-up to 50,000 ton/yr.)	4
235. Iron, wrought; manuf. (over 20,000 ton/yr.)	4
236. " (up to 20,000 ton/yr.)	3
237. Iron or Steel, castings; (over 75,000 ton/yr.)	4
238. " (up to 75,000 ton/yr.)	3
239. Iron or steel; extrusion & smelting (over 50,000 tons/yr.)	4
240. " (up to 50,000 ton/yr.)	3
241. Iron, pig & steel; manuf. (up to 75,000 ton/yr.)	4
242. Ironwork (for buildings) & locks; manuf. (incl. keys, hinges, latches, etc.) (over 20 wrkrs.)	3
243. " (up to 20 wrkrs.)	2
244. Irrigation fittings; manuf. (incl. sprinklers)	3
245. Itong blocks & silicate bricks; manuf.	3
246. Jute, sack; cleaning	2
247. Kennels, commercial; (big, outside residential zones)	3
248. Kerosene ovens & heating appliances; manuf. (incl. kerosene & oil burners, fireside ovens, etc.)	3
249. Kitchenware, aluminum; manuf.	3
250. Kitchenware, stainless; manuf.	3
251. Kitchenware & heating apparatus, n.m.e.; manuf. (incl. copper and enamel)	3
252. Laboratories; (bacteriological, chemical(over 5 wrkrs.),& metallurgical)	3
253. Lacquer & oily paints used for isolation; incl. manuf. of automobile paints (over 500 tons/yr.)	4
254. Laundry, machines & spare parts for household machines & laundries; manuf.	2
255. Lead pipes; manuf.	3
256. Leather processing; lining leather	4
257. Leather processing; lower leather	4
258. Leather processing; upper leather	4
259. Leather processing; mixed sorts (incl. upper & lower leather & lining)	4
260. Leather processing; n.f.i.	4
261. Leather processing; for clothing	4
262. Leather products, n.m.e.; manuf. (incl. leather belts & technical products) (over 20 wrkrs.)	2
263. " (5-20 wrkrs.)	1b
264. " (up to 5 wrkrs.)	1a
265. Leather & leather substitutes, products; repair (over 20 wrkrs.)	2

266.	" (5-20 wrkrs.)	1b
267.	" (up to 5 wrkrs.)	1a
268.	Lens, optical; manuf. & grinding (over 20 wrkrs.)	2
269.	" (5-20 wrkrs.)	1b
270.	" (up to 5 wrkrs.)	1a
271.	Light bulbs; manuf. (incl. incandescent, whitened, neon, & low voltage bulbs)	2
272.	Lime; manuf.	4
273.	Lithography & Zincography	2
274.	Locksmith, mechanical	2
275.	Lubrication oil; mixing & refining	3
276.	Lumber mill & formica; manuf. (incl. sawing & cutting of logs & wood plates & planning of wood plates)	2
277.	Machinery, agricultural; manuf. (incl. manuf. of agricultural tractors, ploughs, milking machines, etc. & manuf. & repair of spare parts & accessories for these machines)	2
278.	Machinery, chemical & food industries; manuf. (incl. repair, installation & manuf. of accessories & spare parts)	2
279.	Machinery, construction & earth works; manuf. (incl. repair, installation & manuf. of accessories & spare parts)	2
280.	Machinery, construction & industrial, n.m.e.; manuf. (incl. installation & repair of machines for textile, tannery, mines, etc., & manuf. & repair of accessories & spare parts)	2
281,	Machinery, metal processing; manuf. (incl. repair, installation & manuf. of accessories & spare parts)	2
282.	Machinery, service, n.m.e.: manuf. (incl. calculating machines, typewriters, espresso & softdrink machines, etc.,incl. manuf. of spare-parts for these machines)	2
283.	Machinery, wood-working; manuf. (incl. repair, installation & manuf. of accessories & spare parts)	2
284.	Magnesium; casting	6
285.	Malachite; mining	5
286.	Manure; drying and handling	3
287.	Manure & refuse; stor. & proc.	4
288.	Marble; proc.	2
289.	Margarine & oil products; manuf. (incl. milk-margarine, peanut-butter, mayonaise, techina, humus-salad, etc.)	2
290.	Matches; manuf.	4
291.	Matzo; manuf. (incl. matzo-meal & crackers)	2
292.	Meat & poultry products, n.m.e.; manuf. (incl. preserves & animal food)	2
293.	Metal barrels reconditioning plant	3
294.	Metal coatings, n.m.e.; (incl. coating by enamel, plastic, etc.) (over 5 wrkrs.)	3
295.	" (up to 5 wrkrs.)	2
296.	Metal-enrichment; (without heat-treatment)	4
297.	Metal, galvanizing; (over 5 wrkrs.)	3
298.	" (up to 5 wrkrs.)	2
299.	Metal-ore; mining (lead, Arsenic, Manganese, Copper)	5
300.	Metal products for building, n.m.e.; manuf. (incl manuf. of steam boilers, gas containers, fuel containers,	

	windows, doors, lintels, etc) (over 20 wrkrs.)	3
301.	" (up to 20 wrkrs.)	2
302.	Metal product painting; over 5 wrkrs.)	3
303.	" (up to 5 wrkrs.)	2
304.	Metal products, n.m.e.; manuf. (incl. buckles, soda-water siphons, shaving machines, bicycles bells, weights, etc.) (over 20 wrkrs.)	3
305.	" (up to 20 wrkrs.)	2
306.	Metal sheet packaging & barrels; manuf. (incl. metal sheet boilers, bread boxes, tin cans, containers, etc.)	3
307.	Metal sheet tube; manuf.	3
308.	Metal sheet and pressed metal products, n.m.e.; manuf. (incl. tin pails, milk jars, garbage handles, washing plates, metal sheet pipes, graters, etc.)	3
309.	Metal wire nails & pegs, manuf.	3
310.	Metal wire nets; manuf.	3
311.	Metal wire, n.m.e.; manuf. (incl. wire household articles, wire fan shields, needles, pins, hooks, chains, wire, etc.)	3
312.	Metal & non metallic ore; mining (surface-mining method)	4
313.	Metallurgical combines	6
314.	Methanol; manuf.	4
315.	Milk; stor. of more than one ton	4
316.	Milk products; manuf. (not incl. ice cream; incl. plants processing milk into various products; incl. pasteurization & sterilization of milk, cheese manuf., sour cream manuf., butter, milk-products freezing, etc.)	2
317.	Mineral non-metal products, n.m.e.; manuf. (incl. manuf. of emery cloth, glass-paper, gypsum, gypsum plates & dividers, etc.)	2
318.	Mineral oil; machinery & stor. depot	3
319.	Mineral salts; manuf. (excluding arsenites, fluorides & chromates)	4
320.	Mirror; manuf	2
321.	Motor electric; manuf.	2
322.	Motorcycles & scooters; manuf. & assembly	3
323.	Motorcycles & scooters; repair (over 20 wrkrs.)	2
324.	" (Up to 20 wrkrs.)	1b
325.	Motorcycles, tricycles & spare parts; manuf,	2
326.	Motor vehicle, electric workshop;(incl. battery-charging) (over 20 wrkrs.)	2
327.	" (up to 20 wrkrs.)	1b
328.	Motor vehicle; painting (over 20 wrkrs.)	2
329.	" (up to 20 wrkrs.)	1b
330.	Motor vehicle; upholstery (over 20 wrkrs.)	2
331.	" (up to 20 wrkrs.)	1b
332.	Musical instruments; manuf. and repair	1b
333.	Nicotine; manuf.	4
334.	Nitric acid; manuf.	5
335.	Non-ferrous metal; casting (over 2,000 ton/yr)	4
336.	" (up to 2,000 ton/yr)	3
337.	Nonferrous metal; extrusion & smelting (over 2,000 ton/yr)	4
338.	" (up to 2,000 ton/yr)	3
339.	Nonferrous metal; manuf. & reprocessing	4

340.	Non-ferrous metal pipe; manuf.	3
341.	Non-metallic mineral mining; (incl. peat, gypsum, asbestos, sulfur, bitumen-asphalt, Kaolinite, pure sand & clay)	4
342.	Noodles & dough products, n.m.e.; manuf. (incl. marcaroni, spaghetti, noodles & other dough products)	2
343.	Nuclear reactors	6
344.	Nylon; manuf.	5
345.	Office & school equipment, n.m.e.; manuf. (incl. chalk, rubber blocks for mimeographing, office trays, draftsman & engineering instruments, etc.)	2
346.	Optical & photographic instruments; manuf. & repair (incl. cameras, telescopes, microscopes, etc.) (over 20 wrkrs.)	1b
347.	" (up to 20 wrkrs.)	1a
348.	Oriental bread (pitah) bakery	1b
349.	Orthopaedic instruments; manuf. (over 5 workers)	1b
350.	Orthopaedic instruments; manuf. (up to 5 wrkrs.)	1a
351.	Oxidation-ponds (up to 5,000 m^3/d)	4
352.	Paint, varnish & lacquer; manuf. (incl. mineral paint & chromium & lead-based paints)	3
353.	Paper; manuf. (incl. packing-paper, chrome-paper, newsprint, oily-paper, etc.) (over 10,000 ton/yr)	5
354.	" (up to 10,000 ton/yr)	4
355.	Paper; manuf. (carbon, mimeographing, photographic, & sunprint-paper)	2
356.	Paper; manuf. (from rags & waste-paper)	2
357.	Paper, waste; stor.	3
358.	Paper, writing; manuf. (blocks, copybooks, notebooks, etc.) (over 20 workers)	2
359.	" (5-20 wrkrs.)	1b
360.	" (up to 5 wrkrs.)	1a
361.	Parking lots for cars & heavy mechanical equipment	3
362.	Paving stones, panels, etc.; manuf. (incl. mosaic casting)	2
363.	Pearl, synthetic; manuf.	2
364.	Pen (ball pens & fountain pens); manuf. (incl. refills for ball pens)	2
365.	Pencils & crayons; manuf.	2
366.	Pesticides; synthesis & formulation	6
367.	Pesticide, agricultural; manuf, (incl. formulation plants for insecticides & poisons used in agriculture)	3
368.	Petroleum, crude; prod.-wells	5
369.	Petroleum, crude (having low volitiles-content), prod.	4
370.	Petroleum processing, (crude with sulfur content of 0.5% or less & low volatile content)	5
371.	Petroleum refinning, (crude with sulfur content over 0.5%)	6
372.	Petroleum, refining; manuf. of by products (incl. L,P,G, manuf.)	6
373.	Phosgene; manuf. & stor. (over 500 kg.)	6
374.	" (up to 500 kg.)	5
375.	Phosphates; mining	5
376.	Photochemical products; manuf. (for photographic use)	3
377.	Photographic film; manuf.	2

378.	Picric acid; manuf.	5
379.	Picric acid; stor. (150 to 1500 kg)	5
380.	Pig breeding	6
381.	Pipes, steel & iron; manuf. (incl. seamless & protective coating pipes).	4
382.	Plastic bottles, containers & other blowing and spraying products; manuf.	2
383.	Plastic material; manuf. (incl. carbolite, cellulose, bakelite, formalin, phenol-formaldehyde castings powder, polyester, polyethylene, polyvinyl-acetate, polyvinylchloride, etc.)	4
384.	Plastic materials; manuf. (from cellulose-esters)	5
385.	Plastic materials (polyurethanes); manuf.	4
386.	Plastic materials (protein-origin); manuf.	4
387.	Plastic napkins (laced); manuf. & printing (over 5 wrkrs.)	2
388.	" (up to 5 wrkrs.)	1b
389.	Plastic plates & pipe; manuf. (incl. coatings, belts, profiles & pipes)	2
390.	Plastic products, reinforced; manuf. (incl. batts, protective helmets, wavy plates, etc.)	2
391.	Plastic products, n.m.e.; manuf. (incl. disposable packings, plastic insulators, vacuum - method manufactured plastic products & plastic bags)	2
392.	Plastic record disks; manuf.	2
393.	Plastic sleeves & their products; manuf. (incl. plastic bags & products & curtains)	2
394.	Plate glass products; manuf. (not incl. flat mirrors; incl. glass for cupboards, tables, windows, flat glass aquarium, china, etc.)(over 5 wrkrs.)	2
395.	" (up to 5 wrkrs.)	1b
396.	Plumbing fixtures; manuf. (incl. swimming pool accessories, faucets, bathroom-batteries, sinks, valves, sluices, etc.)	3
397.	Plywood & by-products; manuuf.	4
398.	Polish & other wax products; manuf. (incl. cleansing products.)	2
399.	Polyacrylonitryle; manuf.	4
400.	Portland cement; manuf.	6
401.	Potash; mining	4
402.	Potassium salts (chloride, sulfate & carbonate); manuf.	4
403.	Power Plants (not incl. Diesel generators & gas turbines)	6
404.	Precast products, concrete; (incl. electric poles & prefabricated parts for buildings)	3
405.	Precision instruments; manuf. (over 20 wrkrs,)	2
406.	" (up to 20 wrkrs.)	1b
407.	Printing-Paint; manuf. (incl. manuf. of printing-paints, ink & india ink, lacquer & oils for painting)	3
408.	Printing press (incl. relief & offset)	2
409.	Publishing; books (incl. atlases)	1a
410.	Publishing; newspapers & journals	1a
411.	Pumps & pumping equipment; manuf.	2
412.	Quarries; (lime, marble, gravel, mosaics)	4
413.	Quarries; (sand dunes, sukri-sand & sea coast sand)	4

414.	Radio, phonograph, television & taperecorder; manuf. (incl. spare parts)	2
415.	Railroad-equipment; manuf. & repair	4
416.	Raincoat; manuf. (over 20 wrkrs.)	2
417.	" (up to 20 wrkrs.)	1b
418.	Razor blade; manuf. (over 20 wrkrs.)	3
419.	" (up to 20 wrkrs.)	2
420.	Ready-mixed concrete; manuf.	3
421.	Records; manuf.	2
422.	Recreation areas;(Fields for circus, fairs and amusement)	3
423.	Refractory ceramics; manuf. (incl. refractory-blocks & fire-refractory bricks)	3
424.	Resins; mnauf. (over 300 ton/yr)	5
425.	" (up to 300 ton/yr)	4
426.	Rope & thread; maunf. (from synthetic materials)	3
427.	Rubber; manuf.	4
428.	Rubber, synthetic; manuf.	5
429.	Rubber, synthetic; manuf. from acetylene	6
430.	Rubber, substitute; manuf.	4
431.	Rubber, vulcanization; (using hydrogen sulfide)	2
432.	Rubber, vulcanization; (without using hydrogen Sulfide)	3
433.	Rubber-goods; manuf. (incl. manuf. of gaskets, bottles & containers, rubber gloves, air pillows, sport equipment, foam rubber toys, etc.)	3
434.	Rubber & caotchouc reprocessing	4
435.	Rugs, floor; mnauf. (by weaving, crocheting or tufting)	1b
436.	Salt, evaporating; (not refining)	4
437.	Sanitary ceramic ware; manuf. (incl. closet stools, sinks, & ceramic armature accessories)	2
438.	Sausage & smoked meat; manuf. (incl. dried meat, meat spread, sausgae, meat & vegetable preserves, processed intestines, etc.)	2
439.	Seals; maunf. (incl. engraving of rubber & steel seals)	2
440.	Sewage treatment; (plants without secondary treatment; oxidation ponds excluded)	6
441.	" (plants over 50,000 m^3/d)	5
442.	" (plants up to 50,000 m^3/d)	4
443.	" (plants up to 100 m^3/d)	3
444.	" (oxidation ponds over 5,000 m^3/d)	5
445.	Sewing; bed linen, curtains, canopies (over 5 wrkrs.)	1b
446.	" (up to 5 wrkrs.)	1a
447.	Sewing; blanket & pillows (over 5 wrkrs.)	1b
448.	" (up to 5 wrkrs.)	1a
449.	Sewing machine & its accessories; mnauf.	2
450.	Ship & boat building yards; (construction & repair of ships, boats & other marine vessels)	4
451.	Shipyards (except boat building)	6
452.	Shoe, mixed sorts; manuf. (incl. manuf. of leather boots, sandals, slippers, etc.)(over 20 wrkrs.)	2
453.	" (5-20 wrkrs.)	1b

454.	" (up to 5 wrkrs.)	1a
455.	Shoe, orthopaedic; manuf. (incl. parts for orthopaedic shoes)(over 20 wrkrs.)	2
456.	" (5-20 wrkrs.)	1b
457.	" (up to 5 wrkrs.)	1a
458.	Shoe, parts, leather & substitutes; Manuf. (incl. sewing of shoe parts) (over 20 wrkrs.)	2
459.	" (5-20 wrkrs.)	1b
460.	Shoe, parts, leather & substitutes; manuf. (incl. sewing of shoe parts) (up to 5 wrkrs.)	1a
461.	Shoes & leather products; repair	1a
462.	Shutters; manuf. (incl. installation of shutters) (over 20 wrkrs.)	3
463.	" (up to 20 wrkrs.)	2
464.	Silversmithing; (incl. holy vessels manuf. by silversmithing)(over 5 wrkrs.)	1b
465.	" (up to 5 wrkrs.)	1a
466.	Slag; manuf. (Thomas method)	4
467.	Slaked lime; manuf.	2
468.	Smelters, nonferrous; (from metal ores or concentrates)	5
469.	Smelters, nonferrous, secondary; (over 3,000 ton/yr)	5
470.	" (up to 3,000 ton/yr)	4
471.	Soap & synthetic cleansing materials; manuf. (incl. plants for manuf. of various types of soap & synthetic cleansing materials)	3
472.	Sodium carbonate; manuf. (over 400,000 ton/yr.)	4
473.	" (up to 400,000 ton/yr)	3
474.	Sodium hydroxide; (electrolytic)	5
475.	Soft drinks; manuf. (incl. plants manuf. sparkling drinks & soda water & plants diluting syrups & marketing it in bottles)	2
476.	Solid waste disposal; closed compostation plants	4
477.	Solid waste disposal; composting (windrows method)	6
478.	Solid waste disposal; mechanical processing	5
479.	Solid waste disposal; municipal incinerator	6
480.	Solid waste disposal? sanitary earthfill projects	4
481.	Soup; manuf. (incl. soup powders, soup cubes & soup essence)	2
482.	Spectacle frames & parts; manuf. (over 20 wrkrs.)	2
483.	" (5-20 wrkrs.)	1b
482.	" (up to 5 wrkrs.)	1a
483.	Spirit, wine; manuf. (incl. grape-juice and vinegar)	3
484.	Springs; manuf.	3
485.	Starch, glucose, cornflour & potatoflour; manuf.	4
486.	Steam boilers; (big size, factories having boilers with steam output over 15,000 kg/hr)	3
487.	" (average size, 2,000 -15,000 kg/hr)	2
488.	" (small size, up to 2,000 kg/hr)	1b
489.	Steel; manuf. (in electrical furnace)	3
490.	Steel cables; manuf.	3
491.	Steel wool; manuf. (over 20 wrkrs.)	3
492.	" (up to 20 wrkrs.)	2

495.	Stockings; knitting (incl. knitting of panty hose) (over 5 wrkrs.)	2
496.	" (up to 5 wrkrs.)	1b
497.	Stone; quarrying, crushing & grinding (without explosives)	4
498.	Sugar; manuf.	4
499.	Sulfur (organic) compounds; manuf.	6
500.	Sulfur- chlorides; manuf.	5
501.	Sulfuric acid & sulfur oxides; manuf.	5
502.	Sun heated boiler; manuf.	3
503.	Superphosphate; manuf. (in plants using or manuf. sulfuric acid or fluorides)	5
504.	Superphosphate-minerals; manuf.	5
505.	Tanneries; (in "new" industrial areas)	6
506.	Tannin; extraction	4
507.	Tea, packing; (incl. instant tea packing, tea roasting & tea extract manuf.)	2
508.	Teeth, artificial; manuf & repair (over 5 wrkrs).	1b
509.	" (up to 5 wrkrs.)	1a
510.	Telecommunication equipment & spare parts; manuf. (incl. repair, installation & manuf. of telecommunication equipment, manuf. of crystals, telephone-exchanges, telephone sets)	2
511.	Textile combines; (waste water output over 100 M^3/d)	4
512.	" (waste-water output up to 100 m^3/d)	3
513.	Textile; finished product sewing, n.m.e. (incl tents, satchels, parachutes, sleeping bags, umbrellas, parasols, sun shades, cloth covers for cars, napkins, tablecloths, etc.) (over 20 wrkrs.)	2
514.	" (up to 20 wrkrs.)	1b
515.	Textile; knitting (over 5 wrkrs.)	2
516.	" (up to 5 wrkrs.)	1b
517.	Textile; printing	3
518.	Textile; weaving from multifilamentious thread; synthetic, natural & artificial (rayon, artificial silk,etc) (over 5 wrkrs.)	2
519.	" (up to 5 wrkrs.)	1b
520.	Textile, weaving; (other types, incl. manuf. of textile from cotton & flax in plants equipped with bleaching and dyeing accessories)	2
521.	Textiles & threads; dyeing, bleaching, finishing & impregnating (waste-water output over 20 m^3/d)	4
522.	" (waste water output up to 20 M^3/d)	3
523.	Thread; manuf. from synthetic fibre, n.m.e. (over 5 wrkrs.)	2
524.	" (up to 5 wrkrs.)	1b
525.	Thread, synthetic; manuf. (incl. Banlon & Stretch) (over 5 wrkrs.)	2
526.	" (up to 5 wrkrs.)	1b
527.	Tile, wall, manuf.	2
528.	Tinsmitting & radiator repair; (automobiles, motorcycles & scooters) (over 5 wrkrs.)	2
529.	" (up to 5 wrkrs.)	1b
530.	Tire; rebuilding	2
531.	Tires and tubes; manuf.	4
532.	Tire & tube; repair (over 20 wrkrs.)	2

533. " (up to 20 wrkrs.) 1b

534. Tobacco products, n.m.e.; manuf. (incl. manuf. of cigars, snuff, chewing & pipe tobacco, processing & fermenting, oriental tobacco, manuf. of tobacco for narghile, etc.) 2

535. Tombstone; chiseling 2

536. Tools, various; manuf. (hammers, tongs, etc.) 3

537. Toys; manuf. (except wood, rubber & plastic toys) (over 5 wrkrs.) 1b

538. " (up to 5 wrkrs.) 1a

539. Tractor; repair (over 20 wrkrs) 2

540. " (up to 20 wrkrs.) 1b

541. Transformers & rectifiers; manuf. 2

542. Transformers & rectifiers; repair (incl. winding of motors & transformers) 2

543. Transport equipment (inside plant); manuf. 2

544. Transport equipment, n.m.e.; manuf. 2

545. Trucks & trailers, bodies; manuf. (over 5 wrkrs.) 2

546. " (up to 5 wrkrs.) 1b

547. Upholsterers workshop & mattress; manuf. 2

548. Vaccine; Manuf 3

549. Various industries, n.m.e.; (incl. manuf of umbrella parts, parts for fans, wigs, decorations, stuffed animal skins, etc.) (over 5 wrkrs.) 1b

550. " (up to 5 wrkrs.) 1a

551. Watch; manuf. & installation (incl. electric clocks) 1b

552. Watches & goldsmithing; repair 1a

553. Water meter; manuf. (over 20 wrkrs.) 2

554. " (up to 20 wrkrs.) 1b

555. Weaving; fabric for upholstery, decoration & curtains (incl. wall carpets) 1b

556. Weaving; textile (using combed or corded wool, or fibres or mixtures) 1b

557. Weaving; textile (using cotton thread & cotton thread mixed with synthetic fibres) 1b

558. Weaving; textiles n.m.e., (incl. jute & flax fabrics, etc.) 1b

559. Weaving products; straw & raffia, etc., manuf. (incl. manuf. of straw hats, plaited trays, basketwork, etc.) (over 5 wrkrs) 1b

560. " (up to 5 wrkrs.) 1a

561. Wheat flour; manuf. 2

562. Wood for wholesaling; stor. areas 3

563. Wood panels, compressed & laminated; (incl. isolation and overlaying plates made of wood chips) 4

564. Wood preserving; (by injecting preservation solutions, without using arsenic salts) 3

565. Wood turning; (over 5 wrkrs) 2

566. " (up to 5 wrkrs). 1b

567. Wood & cork products, n.m.e.; manuf. (incl. laundry clamps, ice cream sticks, ladders, ironing boards, wooden profiles, wooden toys, etc.) (over 5 wrkrs.) 2

568. " (up to 5 wrkrs.) 1b

569. Wood crates & other packings; (incl. repair & manuf. of wooden crates, barrels, containers & planes) (over 5 wrkrs.) 2

570.	" (up to 5 wrkrs.)	1b
571.	Wooden furniture, finished; manuf. & repair (incl. manuf. coating & painting of finished wooden furniture and finished furniture made of wood & metal)(over 5 wrkrs.)	2
572.	" (up to 5 wrkrs.)	1b
573.	Wooden furniture-frames; manuf. (over 5 wrkrs.)	2
574.	" (up to 5 wrkrs.)	1b
575.	Wool spinning; combed wool & combed wool mixed with synthetic thread.	2

Table 14-7. WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class A - 1000 m.
Class B - 500 m.
Class C - 300 m.
Class D - 100 m.
Class E - 50 m.

CHEMICAL PRODUCTION

Class A: Width of protection zone 1000 m.

1. Production of artificial fertilizers in the form of nitrates.
2. Production of nitric acid and other acids during the production of which the nitrogen oxides are formed.
3. Production of prefabricates in aniline dye industry of ether and benzene series; industrial plant of production capacity above 1000 tons per year.
4. Production of prefabricates of naphtalene and anthracene series; industrial plant of production capacity above 2000 tons per year.
5. Production of cellulose and semicellulose using the sulfite or disulfite method, and applying the solutions obtained by combustion of sulfur or other materials containing sulfur.
6. Production of gas for lighting purposes, water gas and producer gas in the amount above 50000 Nm^3 per hour.
7. Production of sodium hydroxide (caustic soda) using the electrolytic method.
8. Production of carbide.
9. Production of artificial fibres by the viscose and the viscose foil method.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

10. The chemical processing of tar.
11. Production of arsenic and its inorganic compounds.
12. Production of light paraffin hydrocarbons in the amount above 5000 m^3 per hour.
13. Refinery processing crude oil containing sulfur in amount above 0.5% (by weight).
14. Production of picric acid.
15. Production of hydrofluoric acid, cryolite and fluorine salts.
16. Chemical processing of bituminous coal (coke plants, gas generating plants).
17. Chemical processing of coal cleaning residuals.
18. Production of soot.
19. Production of sulfuric acid, oleum and sulfur oxides.
20. Production of carbon disulfide.
21. Production of hydrochloric acid.
22. Production of superphosphate together with sulfuric acid.
23. Production of phosphorus (yellow and red).
24. Production of chlorine.
25. Production of hydrocarbon chlorine derivatives.
26. Production of aminoethane acid.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

27. Production of acetic aldehyde from acetylene with the use of metallic mercury.
28. Production of methyltetraphtalen.
29. Production of abrasives.
30. Production of organic sulfur dyes.
31. Production of hydrocyanic acid and its compounds.
32. Production of barite.
33. Production of mercury.
34. Production of pesticides for the protection of plants.
35. Underground coal gasification.
36. Production of chloroprene caoutchouc, with simultaneous production of chlorine.
37. Production of sodium nitrite, hydrazine sulfate, ammonium sulfate and ammonium carbonate.
38. Production of dimethylformamide.
39. Production of reagents for the synthesis of polyamide compounds and polymers and organic synthesis.
40. Chemical processing of peat.

Table 14-1 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class B: Width of protection zone 500 m.

41. Production of ammonium and the derivatives of nitrogen compounds, without the production of nitric acid.

42. Production of synthetic camphor applying the isomerization process.

43. Production of producer gas from coal, peat in an amount equal to 25000 to 50000 Nm^3 per hour.

44. Production of tar.

45. Production of calcinated sodium carbonate with the application of ammonium method in the amount above 400,000 tons per year.

46. Production of organic reagents.

47. Production of plastics from cellulose esters.

48. Production of superphosphate, without departments for sulfuric acid production and processing of fluorine compounds into fluorine salts.

49. Production of hardened fats (with the help of hydrogen obtained by non-electrolytic method).

50. Processing of crude oil containing less than 0.5% of sulfur (by weight).

51. Production of chromic acid and chromium salt anhydrides.

52. Production of artificial leather with the application of volatile organic solvents.

53. Production of complex esters.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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54. Production of prefabricates in aniline dye industry of benzene series; industrial plant of general production capacity below 1000 tons per year.

55. Production of prefabricates of naphtalene and anthracene series; with general production capacity to 2000 tons per year.

56. Production of sulfur dyes, production capacity to 4000 tons per year.

57. Production of azo and azoamino dyes.

58. Production of materials from asbestos.

59. Production of acetylene from natural gas and other hydrocarbons.

60. Production of acetic acid.

61. Production of silicon-organic lacquers.

62. Production of synthetic caoutchouc, except the production described in Class A, item 36.

63. Production of synthetic ethylene alcohol applying sulfuric acid, but without its production.

64. Production of ultramarine.

65. Production of ammonium, sodium, potassium, and calcium saltpetre.

66. Production of rare metals by using the chlorination method.

67. Production of barium chloride, using hydrogen sulfide.

68. Production of fodder yeast and furfural from wooden materials and agriculture solid waste by applying the hydrolysis method.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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69. Production of derivatives of dry coal distillation

70. Production of synthetic fat acids.

71. Production of nicotine.

72. Production of phenol-aldehydes resins and other artificial resins in amount above 300 tons per year.

73. Production of synthetic fibres: acetic, polyamides, and polyesters.

Class C: Width of protection zone 300 m.

74. Production of after-distillation residues such as coal tar, crude oil and wood tar.

75. Production of calcinated soda applying the ammonia method in an amount below 400,000 tons per year.

76. Production of sodium hydroxide applying the nonelectrolytical method.

77. Production of inorganic salts, with the exception of phosphoric, arsenic and chromic salts.

78. Production of light paraffin hydrocarbons in an amount from 1000 to 5000 Nm^3 per hour and the production of producer gas to 25,000 Nm^3 per hour.

79. Production of pressed materials from paper and textiles saturated with phenol-aldehyde resins in the amount above 100 tons per year.

80. Production of artificial mineral dyes.

81. Regeneration of rubber and caoutchouc.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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82. Production of rubber, rubber materials, ebonite and rubber footwear.
83. Production of artificial caoutchouc from ethyl alcohol applying the Lebiediev method.
84. Production of different fertilizer mixtures.
85. Production of carbon articles for electrochemical industry (electrodes, etc.).
86. Vulcanization of rubber with the use of carbon disulfide.
87. Production of acetic aldehyde applying the parafaze method, without the metallic mercury.
88. Production and storage of ammoniacal water.
89. Production of styrene and its isomers.
90. Production of alumino-organic sealing-waxes, resins and their solutions.
91. Transformation of thermoplastic materials.
92. Production of varnishes.
93. Production of paper from cellulose and waste-paper.
94. Production of fat and alcohol sealing-waxes.
95. Chlorine stores.

Class D: Width of protection zone 100 m.

96. Production of plastics on the protein bases (aminoplastics, etc.).
97. Production of producer gas from coal and peat in the amount up to 5000 m^3 per hour.
98. Production of glycerine from glycerine waters.
99. Manufacturing of pencils.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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100. Production of organic reagents.

101. Production of pressed materials from paper and textile saturated with phenol-aldehyde resins in an amount to 100 tons per year.

102. Production of hardened fats with the help of hydrogen obtained by the electrolytic method.

103. Salt-words and salt-mills.

104. Production of pharmaceutical potassium salts (chlorine, sulfate, carbonate).

105. Production of saccharine and vanilla.

106. Production of light paraffin hydrocarbons in an amount up to 1000 Nm^3 per hour.

107. Production of tannery extracts.

108. Manufacturing of matches.

109. Production of natural mineral dyes (chalks, minium, etc.).

110. Production of perfumes.

111. Production of alkolaids.

112. Rubber vulcanization plants not applying **carbon disulfide**

113. Production of articles from synthetic resins and plastics applying different methods (pressing, punching, casting under pressure, vacuum die casting, etc.).

114. Production of additives for polychlorovinyl, polyurethane, polystyrene and other thermoplastic materials.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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115. Manufacturing of soap.

116. Production of organic and inorganic reagents, without chlorine production.

117. Production of the artificial mother of pearl.

118. Cistern cleaning and washing plant.

Class E: Width of protection zone 50 m.

119. Production of carbon dioxide so called "dry ice."

120. Production of articles from plastics (mechanical working).

121. Production of compressed hydrogen and oxygen.

122. Production of photographic materials (films, light-sensitive paper).

123. Production of different types of paper and cardboard from the semiprefabricates, production of wood pulp applying water or sulfite, without burning of the waste products containing sulfur and without application of the liquid sulfur dioxide.

Metallurgical Plants, Machinery Construction Plants and Metal Treatment Plants

Class A: Width of protection zone 1000 m.

124. Production of magnesium applying the chlorination method.

125. Secondary processing of non-ferrous metals in an amount above 3000 tons per year.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

126. Melting of pig-iron in blast-furnaces of total capacity above 1500 m^3.

127. Melting of non-ferrous metals directly from ores and concentrates.

128. Coke plants (coke production).

129. Production of aluminium applying the method of melted salt electrolysis.

130. Aglomerration of iron and non-ferrous metal ores and pyrites.

131. Production of steel in an amount above 1,000,000 tons per year.

132. Hot rolling mills.

133. Production of ferroalloys.

Class B: Width of protection zone 500 m.

134. Production of magnesium applying all methods except chlorine method.

135. Melting of pig-iron in blast-furnaces of total capacity up to 1500 m^3.

136. Production of ground thomasyne.

137. Production of formed iron casts in an amount above 20,000 tons per year.

138. Production of antimony applying the metallurgical method.

139. Production of zinc, nickel, copper and cobalt applying the method of water solution electrolysis.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

140. Heavy forges.

141. Production of steel applying the open-hearth method and convertor method in an amount equal to 1,000,000 tons per year.

142. Production of lead batteries.

Class C: Width of protection zone 300 m.

143. Secondary processing of non-ferrous metals in an amount to 3000 tons per year.

144. Production of formed iron casts in an amount from 10,000 to 20,000 tons per year.

145. Production of non-ferrous metals in an amount from 100 to 2000 tons per year.

146. Production of cables in rubber or lead insulation.

147. Production of articles containing mercury (mercury rectifiers, lamps, thermometers).

Class D: Width of protection zone 100 m.

148. Production of noninsulated cables.

149. Production of machinery and the equipment for electrotechnical industry (generators, motors, transformers, etc. with the presence of casting and heat treatment departments).

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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150. Working of metals with pig-iron and steel casting up to 10,000 tons per year and with non-ferrous metal casting up to 100 tons per year.

151. Mechanical work shops.

Class E: Width of protection zone 50 m.

152. Working of metals together with thermal treatment without casting.

153. Production of equipment for electrotechnical industry without casting (electrical lamps, torches, etc.).

154. Production of hard metal alloys, without departments for ore chemical treatment.

Mining of Ores and Other Fossils

Class A: Width of protection zone 1000 m.

155. Mining of crude oil with the sulfur content above 0.5% (by weight).

156. Mining of lead, arsenic and manganese ores.

157. Strip mining of sulfur ores.

Class B: Width of protection zone 500 m.

158. Mining of combustible slates.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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159. Strip mines of brown coal.

160. Mining of phosphorytes and pyrites without chemical treatment.

Class C: Width of protection zone 300 m.

161. Mining the crude oil with a content of sulfur below 0.5% (by weight).

162. Strip mining of dolomites, asbestos and asphalts.

163. Strip mining of metal ores with the exception of lead, arsenic and manganese ores.

164. Production of briquettes from coal dust and peat.

165. Production of asphalt-concrete.

166. Bituminous coal mines.

Class D: Width of protection zone 100 m.

167. Pit mining of metal ores with the exception of lead, arsenic and manganese ores.

168. Strip mining of peat.

169. Salt (for domestic use) mines.

Table 14- / (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class E: Width of protection zone 50 m.

170. Mining of gravel, without use of the explosives.

Production of Building Materials

Class A: Width of protection zone 1000 m.

171. Production of portland and slag cement in the amount above 150,000 tons per year.

172. Production of lime, dolomite and chamotte by calcination in rotary and other furnaces.

Class B: Width of protection zone 500 m.

173. Production of portland and slag cement in the amount to 150,000 tons per year.

Class C: Width of protection zone 300 m.

174. Production of glass cotton-wool and slag-wool.

175. Crushing of light and hard rocks.

176. Production of cardboards.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class D: Width of protection zone 100 m.

177. Manufacturing of asbestos-cement products.

178. Manufacturing of artificial stones and concrete products.

179. Production of mixed binders in local conditions and lime-sand bricks.

180. Manufacturing of clinker, ceramic products and other fire resistant products.

181. Production of glass.

182. Production of building materials from heat-power generation plant solid wastes.

183. Cement and other dust materials elevators as well as the supply plants.

184. Manufacturing of porcelain and faience products.

185. Stone casting (molten basalt).

186. Mining of stones (without using the explosives) and the plants for processing natural stones.

Class E: Width of protection zone 50 m.

187. Manufacturing of gypsum products.

188. Manufacturing of products from cane, hay and parings with gypsum or cement mortar.

189. Manufacturing of clay products.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Processing of Wood

Class A: Width of protection zone 1000 m.

190. Production of charcoal by the non-retort method.

191. Production of ply-wood and cardboard.

Class C: Width of protection zone 300 m.

192. Saturation of wood (impregnation and conservation).

193. Production of charcoal by the retort-method.

Class D: Width of protection zone 100 m.

194. Production of wood wool.

195. Production of plank, veneer and other typical building elements.

196. Wooden ship construction.

197. Production of farm carts.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class E: Width of protection zone 50 m.

198. Manufacturing products from wood wool.

199. Production of wicker-works from rush-mat and wooden textiles.

200. Joiner-carpenter production.

201. Manufacturing copper products from ready staves.

202. Conservation of wood by coating with salt watery solutions (with the exception of arsenic salts).

Textile Production

Class B: Width of protection zone 500 m.

203. Impregnation of textiles using chemical compounds containing carbon disulfide or hydrogen sulfide.

Class C: Width of protection zone 300 m.

204. Preliminary processing of bast fiber (linen, hemp, etc.).

205. Saturation of textiles and paper with different varnishes in continuous way for the electrical-engineering industry, with the production magnitude above 300 tons per year of saturated material.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

206. Saturation and processing of textiles using the chemical solutions with the exception of carbon disulfide; if varnish is prepared at the plant, it should be included to an adequate class of chemical production.

207. Plants manufacturing asbestos.

Class D: Width of protection zone 100 m.

208. Unreeling the cocoons.

209. Production of ropes and cords.

210. Production of cotton, linen, wool yarn and textiles together with bleaching and dyeing.

Class E: Width of protection zone 50 m.

211. Manufacturing the knit-wear products and lace.

212. Porduction of cotton, linen, wool yarn and textiles without bleaching.

213. Production of carpets and artificial furs.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Processing of the Animal Products

Class A: Width of protection zone 1000 m.

214. Production of technical gelatine from rotten bones, waste skin and other animal wastes, with storing them in stores and in the open air.

215. Production of glue from skin waste, bones and other animal wastes.

216. Utilization of carrion, rotten fish and fish and animal wastes.

Class B: Width of protection zone 500 m.

217. Melting of technical tallow in the amount above 30 tons per year.

218. Tanning the hide of big animals.

Class C: Width of protection zone 300 m.

219. Processing of animal furs together with dyeing (furs, sheepskin fur, production of suede and chamois).

220. Processing of bristle and wool.

221. Melting of technical tallow in the amount below 30 tons per year.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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222. Stores of preserved (salted) but not processed animal skins in the amount above 200 pieces.

223. Production of animal nourishment from waste foodstuffs.

Class D: Width of protection zone 100 m.

224. Production of felt.

225. Production of gelatine from fresh or shortly stored in refrigerators raw materials or cleaned bones, specially prepared for this production.

226. Production of skeletons and other anatomical exhibits from animals, birds, etc. for use as school aids.

227. Processing of bristle, down, feathers, horns and hoofs.

228. Production of strings and catgut from bowels.

Class E: Width of protection zone 50 m.

229. Production of footwear.

230. Production of varnished leather.

231. Manufacturing articles from processed bones.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

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232. Production of brushes from bristle.

233. Stores of preserved skin (salted) containing to 20 pieces for temporary storing (without processing).

Production of Foodstuffs

Class B: Width of protection zone 500 m.

234. Melting of fats from fish and other sea animals.

235. Processing of bowels, if this process takes place outside of the slaughter-house.

236. Stands for washing and cleaning trucks used for cattle transport.

237. Animal slaughter-houses processing above 8000 tons per year.

Class C: Width of protection zone 300 m.

238. Production of sugar.

239. Animal slaughter-houses processing below 8000 tons per year.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class D: Width of protection zone 100 m.

240. Production of albumines.
241. Production of ethylene alcohol.
242. Slaughter of small animals and poultry up to 1000 per day.
243. Production of fodder.
244. Processing of meat. Slaughter-houses.
245. Extracting vegetable oils.
246. Coffee roasting
247. Production of margarine and other edible oils (fats).
248. Processing of vegetables (drying, salting, pickling).
249. Production of glucose and dextrine.
250. Fish processing.
251. Production of canned fish and filets.
252. Production of starch.
253. Manufacturing of tobacco articles.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class E: Width of protection zone 50 m.

254. Production of pork-meat articles above 3 tons per day.

255. Fish smoking.

256. Production of beer, leaven and wines.

257. **Refining** of sugar.

258. Refrigerators of capacity above 600 tons.

259. Canning of fruits and vegetables.

260. Stores for keeping fruits and vegetables.

261. Production of macaroni (noodles).

262. Production of sweets above 20,000 tons per year.

263. Production of pastries.

264. Manufacturing of patties.

265. Production of vinegar.

266. Dairy plants.

267. Production of flour and grits.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Municipal Sanitary Plants

Class A: Width of protection zone 1000 m.

268. Open garbage dumps.
269. Solid wastes dumps.

Class B: Width of protection zone 500 m.

270. Irrigation and filtration fields with the amount of wastes above 5000 m^3 per day.
271. Utilization plants.
272. Garbage compost grounds.
273. Biothermic garbage chambers.
274. Waste purification plants with the output above 50,000 m^3 per day.

Class C: Width of protection zone 300 m.

275. Irrigation and filtration fields with the amount of wastes below 5000 m^3 per day.
276. Carrion burning grounds.
277. Purification of wastes in the amount from 100 to 50,000 m^3 per day.

Table 14-7 (continued). WIDTH OF PROTECTION ZONES AND SPECIFICATION OF INDUSTRIAL PLANTS ACCORDING TO CLASSES IN POLAND

Class D: Width of protection zone 100 m.

278. Waste purification plants with the efficiency up to 100 m^3 per day.

279. Town district boiler houses.

Class E: Width of protection zone 50 m.

280. Town cleaning equipment depots.

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Carbon Monoxide	All passenger cars	Australia		4.5 vol. %		1
Carbon monoxide	Light duty and heavy commercial > 140 in^3	Canada	Ontario	1.5 vol. %	1969 models	
Carbon Monoxide	100-140 in^3	Canada	Ontario	2.3 vol. %	1969 models	
Carbon Monoxide	50-100 in^3	Canada	Ontario	2.3 vol. %	1969 models	
Carbon Monoxide	All passenger cars	European Economic Community and ECE		4.5 vol. %	June 1970	1
Carbon Monoxide	All passenger cars	Japan		4.5 vol. %		
Carbon Monoxide	Heavy duty cars	Japan		1.6 vol. %		
Carbon Monoxide	All passenger cars	Spain	Madrid	8.0 vol. %		2
Carbon Monoxide	All passenger cars	Spain	Madrid	3.0 vol. %		3
Carbon Monoxide	All passenger cars	Sweden		4.5 vol. %	1970 models and earlier	
Carbon Monoxide	All passenger cars	Canada		25.0 g/mi	1975	

TABLE 15

EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Carbon Monoxide	All passenger cars	Canada		3.4 g/mi	1976	
Carbon Monoxide	Passenger cars, (gasoline & LPG powered)	Japan		2.7 g/km	1975	8
Carbon Monoxide	Passenger cars (gasoline & LPG powered)	Japan		85 g/test	1975	9
Carbon Monoxide	Passenger car gasoline powered ‹ 2.5 tons	Sweden		45 g/km	1971-75 models	14
Carbon Monoxide	Passenger car gasoline powered ‹ 2.5 tons	Sweden		24.2 g/km	1976 models **and later**	10
Carbon Monoxide	Gasoline powered light duty veh.	U.S.A.		87 g/mi	1968 and older	15
Carbon Monoxide	Gasoline powered light duty veh.	U.S.A.		34 g/mi	1970/71	15
Carbon Monoxide	Gasoline powered light duty veh.	U.S.A.		39 g/mi	1974 model	10
Carbon Monoxide	Gasoline powered light duty veh.	U.S.A.		3.4 g/mi	1975 model	10,12

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Carbon Monoxide	Gasoline powered light duty veh.	U.S.A.		3.4 mi/g	1976	10
Carbon Monoxide	Light duty bus or truck (gasoline or LPG powered)	Japan		17.0 g/km	1975	8
Carbon Monoxide	Light duty bus or truck (gasoline or LPG powered)	Japan		130.0 g/test	1975	9
Carbon Monoxide	Light duty bus or truck (2 cycle eng.)	Japan		17.0 g/km	1975	8
Carbon Monoxide	Light duty bus or truck (2 cycle eng.)	Japan		130.0 g/test	1975	9
Carbon Monoxide	Gasoline powered heavy duty meh.	U.S.A.		40.0 g/Brake HP-hr	1974	
Carbon Monoxide	Diesel light duty vehicle	U.S.A.		3.4 g/mi	1975	
Carbon Monoxide	Diesel light duty vehicle	U.S.A.		3.4 g/mi	1976	

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Carbon Monoxide	Diesel light duty truck	U.S.A.		20 g/mi	1975	
Carbon Monoxide	Diesel powered heavy duty truck	U.S.A.		40 g/Brake HP-hr	1974	
Hydrocarbons	Passenger cars	Australia		3.4 g/mi	1973	
Hydrocarbons	Passenger cars	Canada		3.4 g/mi	1973	4
Hydrocarbons	Passenger cars	Canada		0.41 g/mi	1976	5
Hydrocarbons	Light duty >140in^3	Canada	Ontario	275 ppm	1969 models and older	
Hydrocarbons	Light duty 100 - 140 in^3	Canada	Ontario	350 ppm	1969 models and older	
Hydrocarbons	Light duty 50 - 110 in^3	Canada	Ontario	410 ppm	1969 models and older	
Hydrocarbons	Passenger cars	European Economic Community			June 1970	4

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Hydrocarbons	Passenger cars (gasoline or LPG powered) also 2 cycle engine	Japan		0.39 g/km	1975	8
Hydrocarbons	Passenger cars (gasoline or LPG powered) also 2 cycle eng.	Japan		9.5 g/test	1975	9
Hydrocarbons	Passenger cars (gasoline powered) < 2.5 tons	Sweden		2.2 g/km	1971-75	14
Hydrocarbons	Passenger cars (gasoline powered) < 2.5 tons	Sweden		2.1 g/km	1976 and later	10
Hydrocarbons	Gasoline powered light duty veh.	U.S.A.		3.4 g/mi	1974	
Hydrocarbons	Gasoline powered light duty veh.	U.S.A.		0.41 g/mi	1975	12
Hydrocarbons	Gasoline powered light duty veh.	U.S.A.		0.41 g/mi	1976	

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Hydrocarbons	Light duty bus or truck (gasoline or LPG powered)	Japan		2.7 g/km	1975	8
Hydrocarbons	Light duty bus or truck (gasoline or LPG powered)	Japan		17 g/test	1975	9
Hydrocarbons	Light duty bus or truck (gasoline or LPG powered)	Japan		15 /km	1975	8
Hydrocarbons	Light duty bus or truck (2 cycle eng)	Japan Japan		130 g/km	1975	9
Hydrocarbons (+ NO_x)	Heavy duty truck (Gasoline powered)	U.S.A.		16 g/Brake HP-hr	1974	
Hydrocarbons	Diesel light duty veh.	U.S.A.		0.41 g/mi	1975	
Hydrocarbons	Diesel light duty veh.	U.S.A.		0.41 g/mi	1976	
Hydrocarbons	Diesel light duty veh.	U.S.A.		2.0 g/mi	1975	

TABLE 15
EMISSION STANDARDS FROM MOBILE
SOURCES, OTHER THAN THOSE FROM SUBSIDIARY
JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Hydrocarbons (+ NO_x)	Diesel powered heavy duty truck	U.S.A.		16 g/Brake HP-hr	1974	
Hydrocarbons (evaporative loss)	Gasoline powered light duty veh.	U.S.A.		2.0 g/test	1974	
Hydrocarbons (evaporative loss)	Gasoline powered light duty veh.	U.S.A.		2.0 g/test	1975	
Hydrocarbons (evaporative loss)	Gasoline powered light duty truck	U.S.A.		2.0 g/test	1975/76	
Nitrogen oxides	All passenger cars	Canada		3.0 g/mi	1973	
Nitrogen Oxides	All passenger cars	Canada		0.4 g/mi	1976	
Nitrogen Oxides	Passenger cars (gasoline or LPG Powered)	Japan		1.6 g/mi	1975	8
Nitrogen Oxides	Passenger cars (gasoline or LPG powered)	Japan		11 g/test	1975	9
Nitrogen Oxides	Passenger cars (2 cycle engine)	Japan		0.5 g/mi	1975	8

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Nitrogen Oxides	Passenger cars (2 cycle eng.)	Japan		4.0 g/test	1975	9
Nitrogen Oxides	Gasoline powered light duty veh.	U.S.A.		3.0 g/mi	1974	
Nitrogen Oxides	Gasoline powered light duty veh.	U.S.A.		3.1 g/mi	1975	
Nitrogen Oxides	Gasoline powered light duty veh.	U.S.A.		0.4 g/mi	1976	13
Nitrogen Oxides	Light duty bus or truck (gasoline or LPG powered)	Japan		2.3 g/km	1975	8
Nitrogen Oxides	Light duty bus or truck (gasoline or LPG powered)	Japan		20 g/test	1975	9
Nitrogen Oxides	Light duty bus or truck (2 cycle eng.)	Japan		0.5 g/km	1975	8

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Nitrogen Oxides	Light duty bus or truck (2 cycle eng)	Japan		4.0 g/test	1975	9
Nitrogen Oxides	Diesel light duty veh.	U.S.A.		3.1 g/mi	1975	
Nitrogen Oxides	Diesel light duty veh.	U.S.A.		0.[illegible] g/mi	197[illegible]	
Nitrogen Oxides	Diesel light duty veh.	U.S.A.		3.1 g/mi	1975	
Smoke	All cars	Brazil		2 Ringelmann		
Smoke	Trucks	Canada	Ontario	2 Ringelmann		
Smoke	Trucks	Canada	Ontario	1 Ringelmann		7
Smoke		Finland		3.5 Bosch units		16
Smoke		Finland		4.5 Bosch units		17
Smoke	Gasoline powered	France		10.0 Hartridge		
Smoke	Buses and trucks < 6 tons	France		45.0 Hartridge		

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Smoke	Trucks [illegible]-19 tons	France		50.0 Hartridge		
Smoke	Trucks >19 tons	France		[illegible]0.0 Hartridge		
Smoke		Japan		50.0 Hartridge		
Smoke	Gasoline powered	Mexico		[illegible] Ringelmann		18
Smoke	Diesel powered	Mexico		3 Ringelmann		19
Smoke		Norway		[illegible]0.0 Hartridge		
Smoke		Philippines		[illegible] Ringelmann		
Smoke		Spain	Madrid	[illegible].0 Hartridge		
Smoke	Diesel engines (buses> 30 passenger)	Sweden		2.5 Bosch or 30.0 Hartridge		
Smoke	Diesel engines (all others)	Sweden		3.5 Bosch or 45.0 Hartridge		
Smoke	Diesel engines	Switzerland				
Smoke	Passenger cars	Yugoslavia	Sarajevo	5.0 Bosch units		20

TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

POLLUTANT	TYPE CAR	LOCATION		STANDARD	EFFECTIVE DATE OR MODEL YEAR	FOOT-NOTES
		COUNTRY	CITY OR PROVINCE			
Smoke	Passenger cars › 250 cm^3	Yugoslavia	Sarajevo	5.0 Bosch Units		21
Smoke	Passenger cars › 800 cm^3	Yugoslavia	Sarajevo	5.0 Bosch Units		22
Smoke	Heavy duty trucks	U.S.A.		20% opacity		6
Smoke	Heavy duty trucks	U.S.A.		15% opacity		7
Smoke	Heavy duty trucks	U.S.A.		50% opacity		23

FOOTNOTES
TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

1. Australia, Austria, Belgium, Czechoslovakia, Denmark, Finland, France, Great Britain, Hungary, Italy Luxembourg, Netherlands, Switzerland, Yugoslavia, See Table 15-1 and Figure 15-1

2. Idle

3. Course

4. See Table 15-1 and Figure 15-1

5. Proposed

6. During acceleration

7. During lugging

8. 10-mode test, see Figure 15-3

9. 11-mode test, see Figure 15-4

10. U.S. 1973 regulation and test method

11. Complete ECE cycle, see Figure 15-1

12. Interim standard for granted extension: CO 15 g/mi, HC 1.5 g/mi

13. Interim standard for granted extension: 2.0 g/mi

14. EEC test Cycle Figure 15-1

15. U.S. FTP Cycle

FOOTNOTES
TABLE 15
EMISSION STANDARDS FROM MOBILE SOURCES, OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES

16. Annual inspection

17. Street control

18. A full load

19. Less than 10 seconds warm up allowed

20. See Table 15-5

21. Has to be checked once a year

22. May be exceeded for first 5 minutes

23. To be met in all stages

TABLE 15-1
EMISSION LIMITS OF THE EUROPEAN ECONOMIC COMMUNITY FOR TYPE APPROVAL

Reference weight (rw) kilogrammes	Mass of carbon monoxide grammes per test	Mass of hydrocarbons grammes per test
up to 750	100	8.0
750 to 850	109	8.4
850 to 1020	117	9.4
1250 to 1470	152	10.1
1470 to 1700	169	10.8
1700 to 1930	186	11.4
1930 to 2150	203	12.1
over 2150	220	12.8

TABLE 15-2
EMISSION LIMITS OF THE EUROPEAN ECONOMIC COMMUNITY FOR PRODUCTION SPOT TESTING

Reference weight (rw) kilogrammes	Mass of carbon monoxide grammes per test	Mass of hydrocarbons grammes per test
	L_1	L_2
up to 750	120	10.4
750 to 850	131	10.9
850 to 1020	140	11.3
1020 to 1250	161	12.2
1250 to 1470	182	13.1
1470 to 1700	203	14.0
1700 to 1930	223	14.8
1930 to 2150	244	15.7
over 2150	264	16.6

TABLE 15-3
U.S. FEDERAL EMISSION LIMITS

	Emission Limits - Grams/Mile					
USA (Federal)	1971	1972$^+$	1973	1974	1975	1976
Exhaust HC	2.2	3.4	3.4	3.4	0.41	0.41
Exhaust CO	23.0	39.0	39.0	39.0	3.4	3.4
Exhaust NO_x	-	-	3.0	3.0	3.0	0.4
Particulates*	N.R	N.R	N.R	N.R	0.1	0.1
Test Method	FTP	CVS/C	CVS/C	CVS/C	CVS/CH	CVS/CH

+) The change in numerical value of the limit reflects changes in test and analytical procedures and one more severe than 1971 limits.

*) No test procedure established - limit represents 90% solution from 1970 particulate emissions.

TABLE 15-4
EMISSION LIMITS OF JAPAN

Applicable Motor Vehicle	Test procedure	Emission standards (Exhaust Emissions)		
		CO	HC	NOx
Gasoline- or LPG-fueled passenger car with a capacity of 10 persons or less	10-Mode 11-Mode	2.7 g/km 85 g/test	0.39 g/km 9.5 g/test	1.6 g/km 11 g/test
2 cycle engine	10-Mode 11-Mode	2.7 g/km 85 g/test	0.39 g/km 9.5 g/test	0.5 g/km 4.0 g/test
Gasoline- or LPG-fueled light duty bus (11 persons or more) and truck of 2,500 kg GVW or less	10-Mode 11-Mode	17 g/km 130 g/test	2.7 g/km 17 g/test	2.3 g/km 20 g/test
2 cycle engine	10-Mode 11-Mode	17 g/km 130 g/test	15 g/km 70 g/test	0.5 g/km 4.0 g/test

TABLE 15-5
SMOKE STANDARDS FOR DIESEL VEHICLES, SWITZERLAND

A) Full load method

Cylinder displacement		Bosch shade number
to	3 l	6,0
between	3 and 5 l	5,5
between	4 and 8 l	5,0
over	8 l	4,5

B) Acceleration method

Cylinder displacement		Bacharach - units
to	3 l	6,5
between	3 and 5 l	6,0
between	5 and 8 l	5,5
over	8 l	5,0

TABLE 1[illegible]

RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE
FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Ammonia	Czechoslovakia	Colorimetric	Nessler reagent	2.5	
Ammonia	Rumania	Colorimetric	Nessler reagent		
Ammonia	West Germany (VDI 2461)	Colorimetric	Indophenol		7
Ammonia	West Germany (VDI 2461)	Colorimetric	Nessler reagent		7
Arsenic	Czechoslovakia	Colorimetric	Hydrochloric acid		
Arsenic	USSR	Colorimetric	Reagent paper		
Arsenic	Australia N.S. Wales	Colorimetric	Sodium hydroxide		2
Arsenic	Great Britain	Colorimetric	Sodium hydroxide		2
Carbon Monoxide	Argentina	NDI	Modific. Jacobs	0.1	8
Carbon Monoxide	Canada	NDI		0.1	8
Carbon Monoxide	Czechoslovakia	Volumetric	Iodine pentoxide	0.1	
Carbon Monoxide	Italy	NDI		0.1	8
Carbon Monoxide	Japan	NDI		0.1	8
Carbon Monoxide	USA	NDI		0.1	8

TABLE 16

RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES [1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Carbon Monoxide	USSR	Colorimetric	Si-Molybdenum acid		7
Carbon Monoxide	West Germany	NDI			6,7,8
Carbon Monoxide	West Germany	Titrimetric	Potassium iodine		6,7
Chlorine	Canada, Saskatchewan		O-tolidine		
Chlorine	Czechoslovakia	Colorimetric	Methyl orange		
Chlorine	West Germany (VDI 2458 Bl.1)	Colorimetric	Methyl orange		7
Chlorine	Italy	Colorimetric	Nessler tubes		
Chlorine	Rumania	Colorimetric	Methyl orange		
Chlorine	USSR	Colorimetric			
Chlorine	Australia, N.S. Wales	Colorimetric	Comparison with standard colors		2
Chlorine	Great Britain	Colorimetric	Comparison with standard colors		2
Dustfall	West Germany (VDI 2119 Bl.4)	Collection plate		0.02 $g/m^2/day$	7

TABLE 16
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE
FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOTNOTES
Dustfall	West Germany (VDI 2119 Bl.3)	Jar	Hibernia	0.0133	7
Dustfall	West Germany (VDI 2119 Bl.3)	Jar	Loebner-liesengang	C.0091	7
Dustfall	West Germany (VDI 2119 Bl.3)	Jar	Bergerhoff	0.035	7
Fluorine	Czechoslovakia	Titrimetric	Thorium nitrate		
Fluorine	West Germany (VDI 2452)	Colorimetric	Sodium hydroxide		7
Fluorine	Italy	Colorimetric	Silver sulfate		
Fluorine	Rumania	Colorimetric	Zinc		
Fluorine	USSR	Colorimetric			
Fluorine	Australia N.S. Wales		Calcium hydroxide		2
Fluorine	Great Britain	Colorimetric			2
Hydrocarbons	Italy	FID		0.1	3
Hydrocarbons	USA	FID		0.1	8
Hydrocarbons	West Germany	NIR		0.02	7,

TABLE 16
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE
FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Hydrocarbons	West Germany (VDI 3481)	FID		0.1	7,9
Hydrogen sulfide(H_2S)	Canada, Saskatchewan	Colorimetric	Methylene blue		
Hydrogen sulfide(H_2S)	Czechoslovakia	Colorimetric	Methylene blue		
Hydrogen sulfide(H_2S)	**Italy**	**Colorimetric**	**Methylene blue**		
Hydrogen sulfide(H_2S)	Italy	Conductimetric	Acetic acid		
Hydrogen sulfide(H_2S)	Rumania	Colorimetric	Dimethyl-p-phenylene diamine		
Hydrogen sulfide(H_2S)	USSR	Colorimetric			
Hydrogen sulfide(H_2S)	Australia, N.S. Wales	Densitometric	Lead acetate paper		2
Hydrogen sulfide(H_2S)	Great Britain	Densitometric	Lead acetate paper		2
Hydrochloride (HCl)	Italy	Colorimetric	Mercury-thiocynate		
Hydrochloride (HCl)	USSR	Colorimetric			
Hydrochloride (HCl)	Australia N.S. Wales	Colorimetric			2
Lead	Australia, N.S. Wales	At. abs. spectrophotometric	Nitric acid		

TABLE 16
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES [1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Lead	Czechoslovakia	Polarographic	Alkali hydroxide and cyanide		
Lead	Great Britain	At. Abs. spectrophotometric	Nitric acid		10
Lead	Italy	Colorimetric	NaOH (for 24 hr. average)		
Lead	Italy	Colorimetric	Naphthyl ethylene-diamine (for 30 min average)		
Lead	Rumania	Colorimetric	Diphenyl thiocarbazone		
Lead	USSR	Colorimetric	HNO_3/H_2O_2		
Lead	Australia, N.S. Wales	At. abs. spectrophotometric	Nitric acid		2, 10
Lead	Great Britain	At. abs. spectrophotometric	Nitric acid		2,10
Mercury	Australia, N.S. Wales	Titrimetric	Carbon tetrachloride		
Mercury	Great Britain	Vapor-photoelectric			
Mercury	Great Britain	Titrimetric	Nitric acid, Sulfuric acid		
Nitrogen oxides	Argentina			0.005	

TABLE 16

RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Nitrogen oxides	Australia, N.S. Wales	Colorimetric	Griess-Saltzman	0.005	
Nitrogen oxides	Australia N.S. Wales	Colorimetric (NO)	Potassium permanganate		
Nitrogen oxides	Canada	Chemiluminiscence		0.005	
Nitrogen oxides	Canada Saskatchwan		Jacobs-Hochheiser		
Nitrogen oxides	Czechoslovakia	Colorimetric	Sulfanilic acid		
Nitrogen oxides	Czechoslovakia	Colorimetric	N-1 naphthyl-ethylene diamine		
Nitrogen oxides	West Germany	Titrimetric	Acidimetric		
Nitrogen oxides	West Germany (VDI 2453, Bl. 3&4)	Colorimetric (NO_2)	Sulfanylamid		7
Nitrogen oxides	West Germany (VDI 2453, Bl.1)	Colorimetric (NO_x)	Saltzman		7
Nitrogen oxides	West Germany (VDI 2453, Bl.2)	Colorimetric (NO)	Manganese oxide		7

TABLE 1[illegible]
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Nitrogen oxides	Great Britain	Colorimetric (NO_2)	Sulfanilic acid		
Nitrogen oxides	Great Britain	Colorimetric	Potassium permanganate		
Nitrogen oxides	Italy	Colorimetric	NaOH (for the 24 hr average)		
Nitrogen oxides	Italy	Colorimetric	Naphthyl-ethylene diamine (for the 30 min average)		
Nitrogen oxides	Japan	Colorimetric	Saltzman		
Nitrogen oxides	Rumania	Colorimetric	Naphthyl-ethylene diamine		
Nitrogen oxides	USSR	Colorimetric			
Nitrogen oxides	USSR	Indicator tubes	Benzidin-B-naphthol		
Nitrogen oxides	USA	Colorimetric	Phenol disulfonic acid	0.04 g/m^3	2
Nitrogen oxides	West Germany (VDI 2456 Bl.1)	Colorimetric	Phenol disulfonic acid	0.04 g/m^3	2
Nitrogen oxides	West Germany (VDI 2456 Bl.2)	Titrimetric	Hydrogen peroxide		2
Oxidants	Argentina	Colorimetric	Neutral potassium iodine	0.01	

TABLE 16
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Oxidants	Canada	Chemiluminescence		0.0005	
Oxidants	Japan	Colorimetric			
Oxidants	USA	Chemiluminescence		0.0005	
Oxidants	USSR	Chemiluminescence		0.0005	
Phenol	Czechoslovakia	Colorimetric	P-nitroaniline		
Phenol	Rumania	Colorimetric	P-nitroaniline		
Sulfur dioxide	Argentina	Colorimetric	West-Gaeke	0.01	
Sulfur dioxide	Australia, N.S. Wales	Titrimetric	Sodium thiosulfate	0.01	
Sulfur dioxide	Canada	Colorimetric	West-Gaeke	0.01	
Sulfur dioxide	Canada, Saskatchewan	Colorimetric	West-Gaeke	0.01	
Sulfur dioxide	Czechoslovakia	Colorimetric	Fuchsin-formaldehyde	0.008	
Sulfur dioxide	Great Britain	Titrimetric	Sodium-thiosulfate	0.01	
Sulfur dioxide	Great Britain	Adsorption	Lead dioxide	0.2	
Sulfur dioxide	West Germany	Titrimetric	Hydrogen peroxide	0.01	6,7

TABLE 10

RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Sulfur dioxide	West Germany (VDI 2451)	Colorimetric	Iodine thiosulfate	0.002	[illegible]
Sulfur dioxide	Belgium	Titrimetric	Hydrogen peroxide	0.01	
Sulfur dioxide	Italy	Colorimetric	West-Gaeke	0.01	
Sulfur dioxide	Japan	Conductimetric	Hydrogen peroxide	0.01	
Sulfur dioxide	Rumania	Colorimetric	West-Gaeke	0.01	
Sulfur dioxide	Rumania	Turbidimetric	Barium sulfate	2 ug/3 ml solution	
Sulfur dioxide	Sweden	Colorimetric	West-Gaeke	0.01	
Sulfur dioxide	Sweden	Flame photometric		0.005	
Sulfur dioxide	USA	Colorimetric	West-Gaeke	0.01	
Sulfur dioxide	Australia, N.S. Wales	Titrimetric	Sodium sulphate		2
Sulfur dioxide	Sweden	Colorimetric	Thorin		2
Sulfur dioxide	USA	Titrimetric	Thorin		2
Sulfur dioxide	West Germany (VDI 2462 Bl.4)	Photometric Infrared		0.1 g/m^3	1

TABLE 10
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Sulfur dioxide	West Germany (VDI 2462 Bl.3)	Abs./gravimetric	Hydrogen peroxide	0.04 g/m^3	2
Sulfur dioxide	West Germany (VDI 2462 Bl.2)	Titrimetric	Hydrogen peroxide	0.03 g/m^3	2
Sulfur dioxide	West Germany (VDI 2462 Bl.1)	Titrimetric	Iodine thiosulfate	0.06 g/m^3	2
Suspended particulates	Argentina	High volume			
Suspended particulates	Canada	High volume			
Suspended particulates	Czechoslovakia	Membrane filter			
Suspended particulates	Great Britain	Membrane filter			
Suspended particulates	Italy	High volume			
Suspended particulates	Japan	High volume			
Suspended particulates	Japan	Light scattering			
Suspended particulates	Rumania	Memb. filter			
Suspended particulates	Sweden	Memb. filter			
Suspended particulates	USA	High volume			

TABLE 16
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES [1]

POLLUTANT	COUNTRY	PRINCIPAL METHOD	SPECIFIC METHOD	LOWEST DETECTABLE CONCENTRATION (ppm)	FOOT-NOTES
Suspended particulates	West Germany	High volume			
Suspended particulates	Australia N.S. Wales	Alundum or fiberglass filter			2,3
Suspended particulates	Great Britain (BS 3405)	5 different methods			2,4
Suspended particulates	Sweden	Filter			2,5
Suspended particulates	West Germany (VDI 20[illegible])	Filter			[illegible]

FOOTNOTES
TABLE 16
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES1

1. All methods, if not otherwise stated, are for measuring ambient air concentrations

2. Method for emission measurement

3. Sample has to be taken 2 D (feet) from next bend, D = Diameter

4. Cyclone sonde, BCURA (British Coal Utilities Research Association)(see Fig. 16-1); filters; CEGB (Central Electricity **Generating** Board); ICI (Imperial Chemical Industries Ltd.); NCB (National Coal Board); exterior filter; BISRA (British Iron and Steel Research Assoc.)

5. See Fig. 16-2, Fig 16-3 and Table 16-3

6.

Pollutant	Guideline	Date
Suspended Particulates	VDI 2463 Bl.1	January 1974
Chlorine	VDI 2458 Bl.1	December 1973
Carbon Monoxide	VDI 2455 Bl.1	August 1970
Sulfur Dioxide	VDI 2451 Bl.1 bis 4	August 1968
Hydrogen Sulfide	VDI 2454 Bl.1 bis 3	February 1974
Nitrogen Monoxide	VDI 2453 Bl.1	November 1972
Nitrogen Dioxide	VDI 2453 Bl.2 bis 4	January 1974

7. See also Table 16-1

TABLE 1
RECOMMENDED MEASUREMENT METHODS OTHER THAN THOSE FROM SUBSIDIARY JURISDICTIONS OF THE UNITED STATES[1]
FOOTNOTES

8. NDI = Nondispersive infrared

9. FID = Flame ionization detector

10. At. abs. = Atomic absorption

TABLE 16-1
REQUIREMENTS FOR SAMPLING LOCATION
AND SITE DENSITY, WEST GERMANY *

a) Minimal Investigated Area
Source in middle of Square

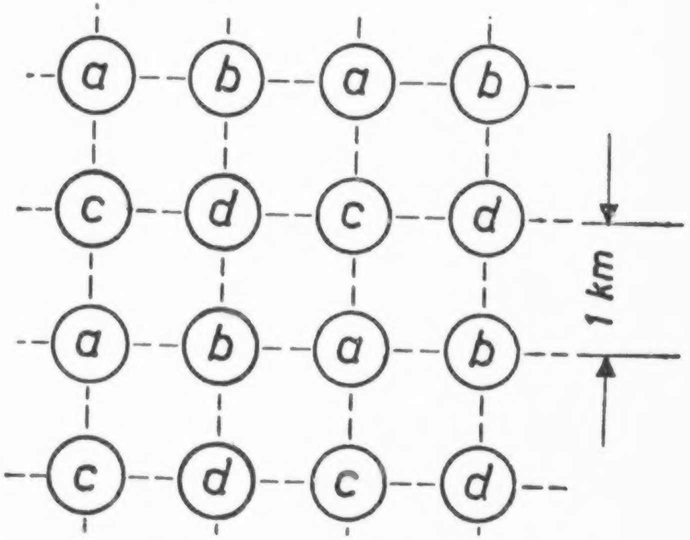
Stack Height	Area
up to 100 m	4 km X 4 km
100 to 200 m	8 km X 8 km
200 m	L = 8 + 0.08(H-200)

H= Stack Height (m), L=side length of square (km)

b) Dustfall measurements

$$\text{Dustfall } (g/m^2d) = \frac{\text{amount of dust}}{\text{measuring area } (m^2) \times \text{time of sampling (days)}}$$

Sample sites
- a) First day
- b) Second day
- c) Third day
- d) Fourth day



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* Only applicable for Stationary Sources for which licensing is required and if estimation indicates that 50% air quality standard concentration is not exceeded

TABLE 16-2
BASIS FOR AN AIR QUALITY INVENTORY, EAST GERMANY

$$I_D = \frac{\bar{c} + t\,S_O}{\sqrt{2z}}$$

$$I_K = \bar{c} + t\,S_O$$

$$S_O = \sqrt{\frac{(c_i - \bar{c})^2}{z - 0.5}}$$

c_i : Single values

$\bar{c}$: Arithmetic mean
I_D : Air Quality for long term load
I_k : Air Quality for short term load
S_O : Distribution parameter of single values c_i greater than the mean $\bar{c}$

t : Statistical factor, for 90% probability $t = 1,3$

z : Number of single values c_i, $\bar{c}$

See also table 11-4, Area Classification

TABLE 16-3
STACK SAMPLING REQUIREMENT, SWEDEN

The required number of measuring points at circular as well as rectangular measuring planes can be established from the following diagram.

☐ D=inner diam in mm
at circular measuring planes

☐ D=0.5(L+B)mm
at rectangular measuring planes
L=inner length in mm
B=inner width in mm

☐ M_1=disturbance-free straight before measuring plane

☐ M_2=disturbance-free straight after measuring plane

☐ At circular measuring plane the number of measuring points should be divisible by 4. The measuring points can then be symetrically distributed along two diameters which intersect at 90 degrees.

☐ At short straights the number of measuring points is read for both M_1 and M_2 the highest figure being chosen.

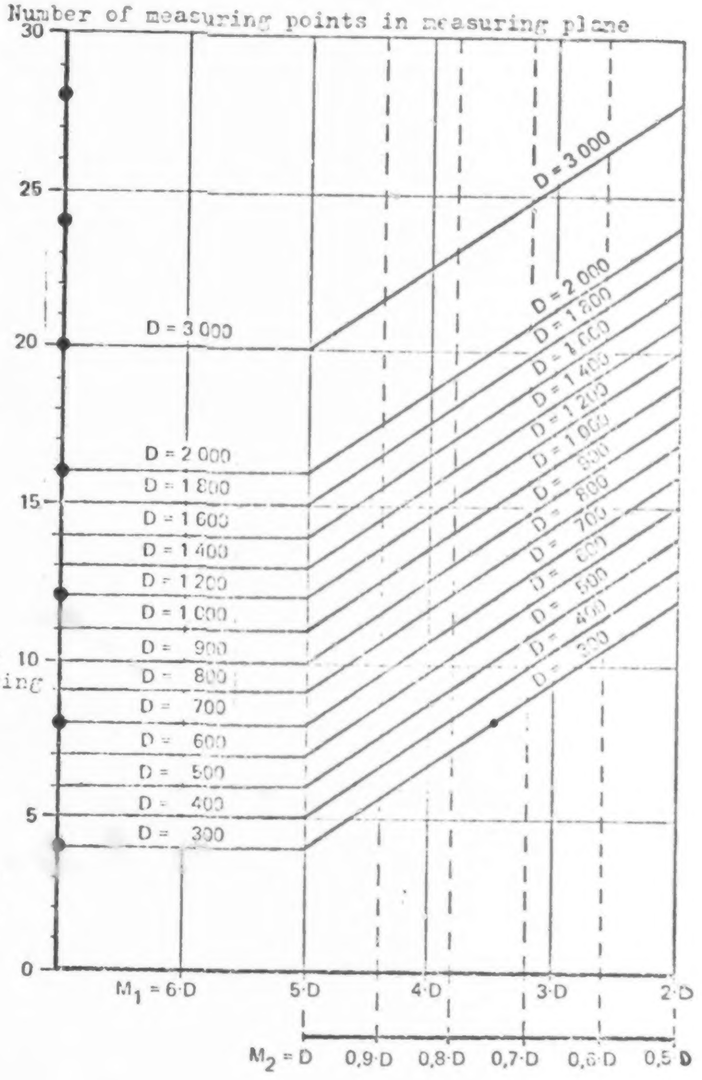


TABLE 16-3, CONT.
STACK SAMPLING REQUIREMENT, SWEDEN

Number of measuring points along a diam.	The number of measuring points along a chimney diam.						
	2	4	6	8	10	12	14
1	85%	93%	96%	97%	97%	98%	98%
2	15%	75	85	90	92	93	94
3		25	70	81	85	88	90
4		7%	30	68	77	82	85
5			15	32	66	75	80
6			4%	19	34	64	73
7				10	23	36	63
8				3%	15	25	37
9					8	18	27
10					3%	12	20
11						7	15
12						2%	10
13							6
14							2%

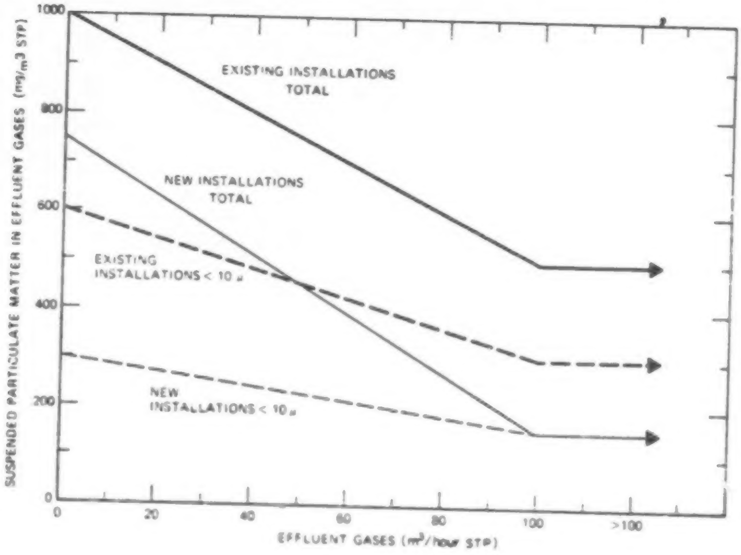
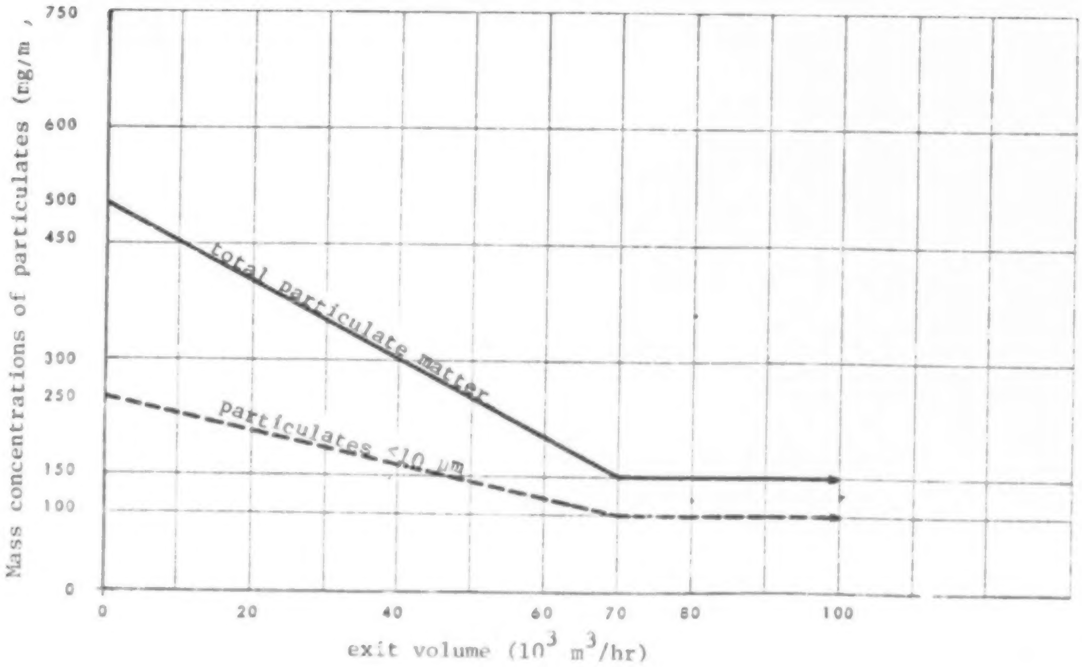


FIGURE 10-1 Emission Standard for Solid Particulate Matter - Federal Republic of Germany

FIGURE 10-2
TOTAL DUST AND FINE DUST EMISSION
STANDARDS, GENERAL, WEST GERMANY



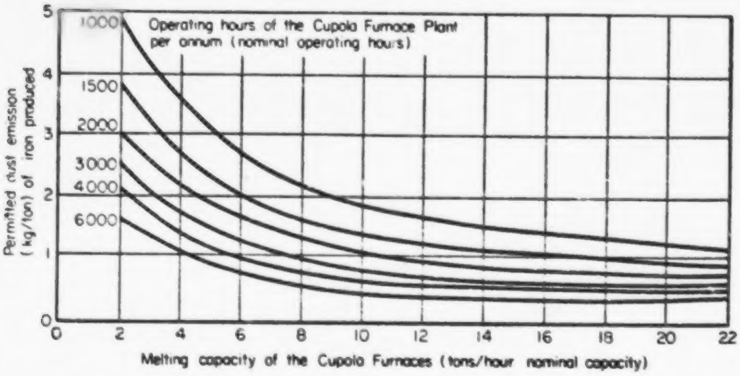


FIGURE 10-3 - Emission Standard for New Cupolas - Federal Republic of Germany (also VDI 2288)

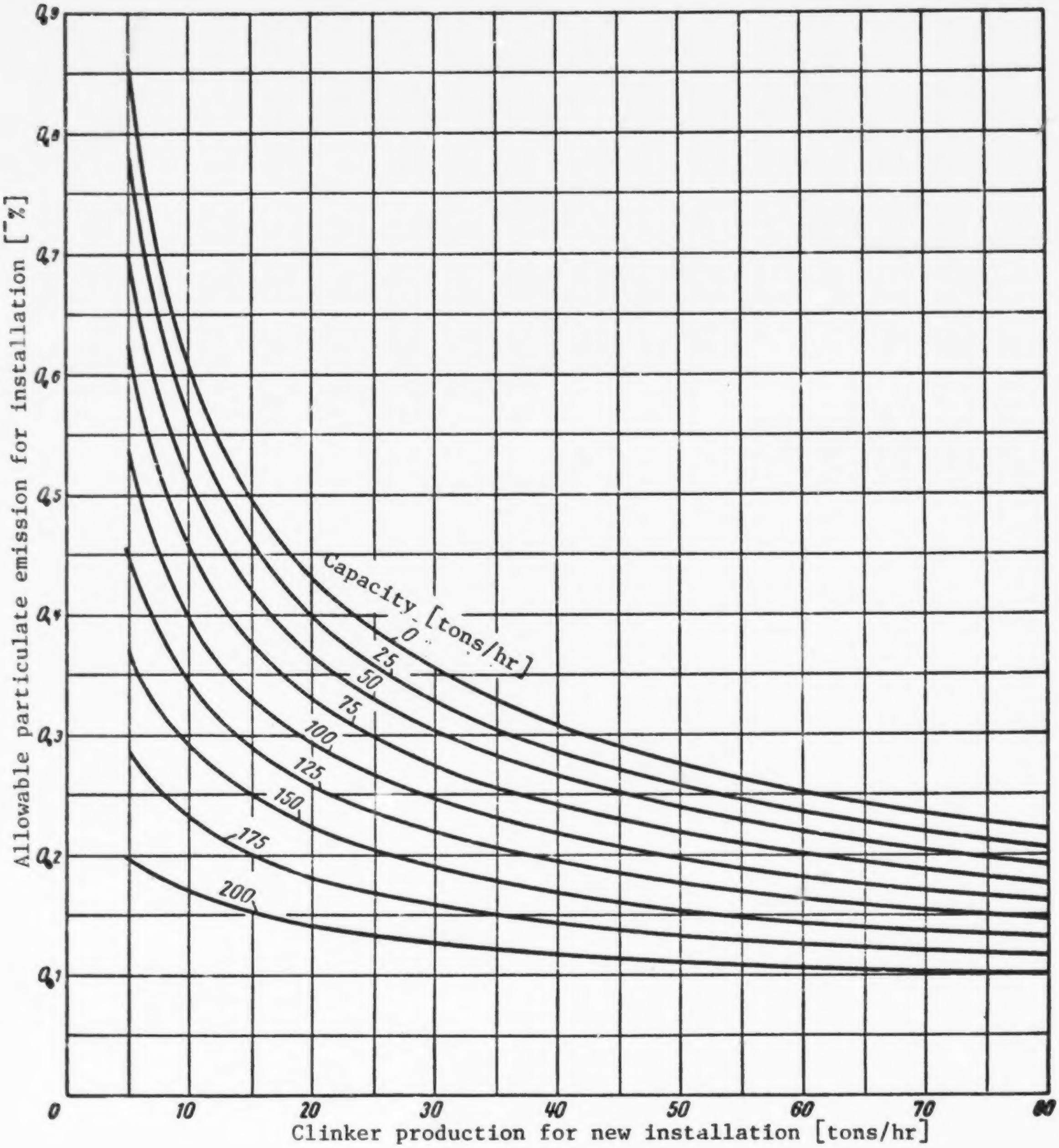


FIGURE 10-4 Emission Standard for Cement Kilns - Federal Republic of Germany (also VDI 2094)

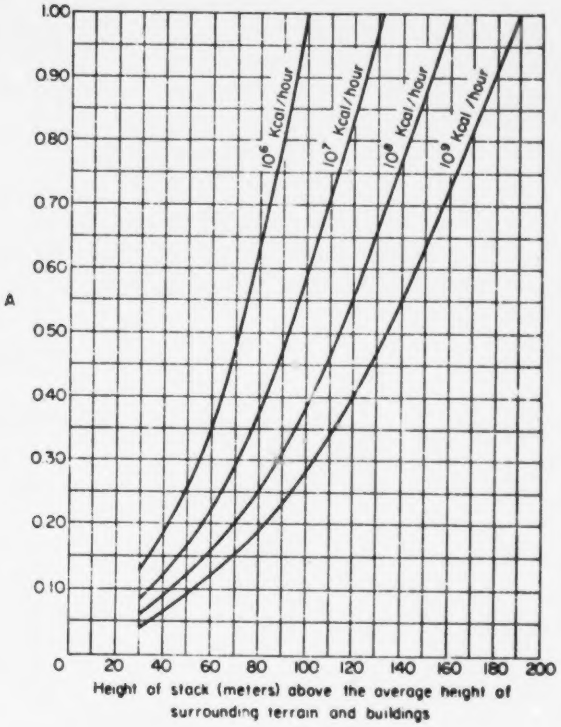
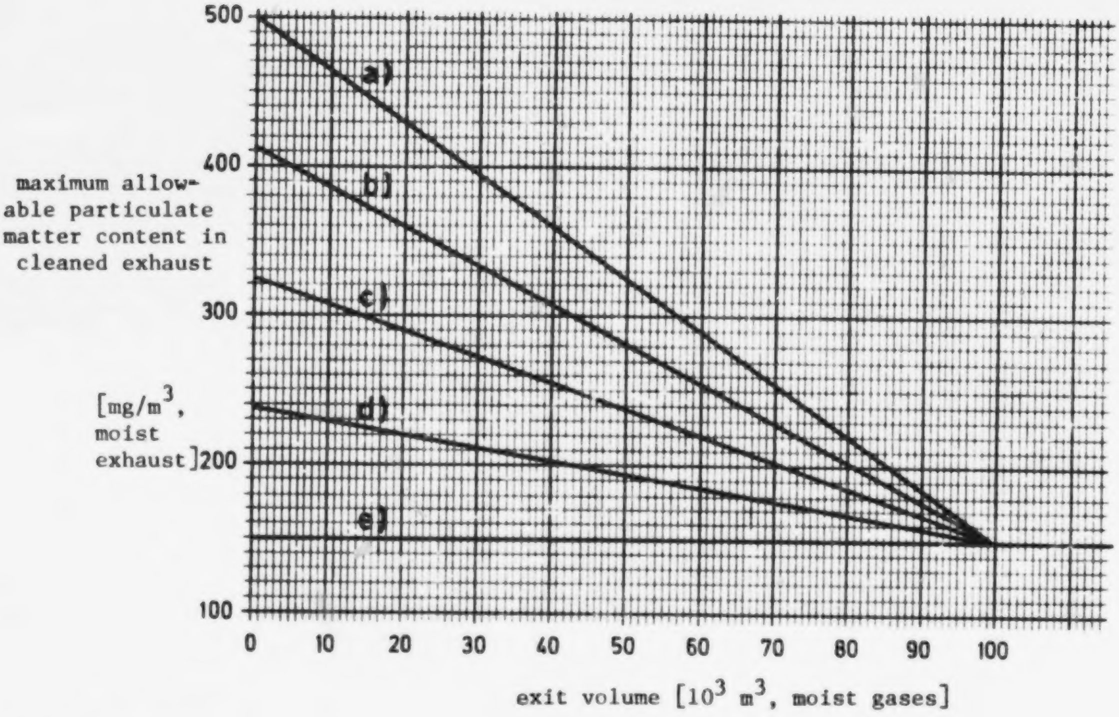


FIGURE 10-5 - Determination of Factor A in Fly Ash Emission Limit Computation (a) - Italy

(a) Concentration in flue gas $(g/m^3) = 0.25\ (1+A)$

FIGURE 10-6 - Asphalt Plant Emissions
Northrhine-Westphalia



Particulate matter load in the uncleaned exhaust

Line a): more than 120 g dust/m^3 moist exhaust

Line b): more than 90 g to 120 g/m^3 moist exhaust

Line c): more than 60 g to 90 g/m^3 moist exhaust

Line d): more than 30 g to 60 g/m^3 moist exhaust

Line e): up to 30 g/m^3 moist exhaust

FIGURE 10-7
TOTAL PARTICULATED EMISSIONS FOR FIBER AND PARTICLE BOARD PRODUCTION UNITS, WEST GERMANY

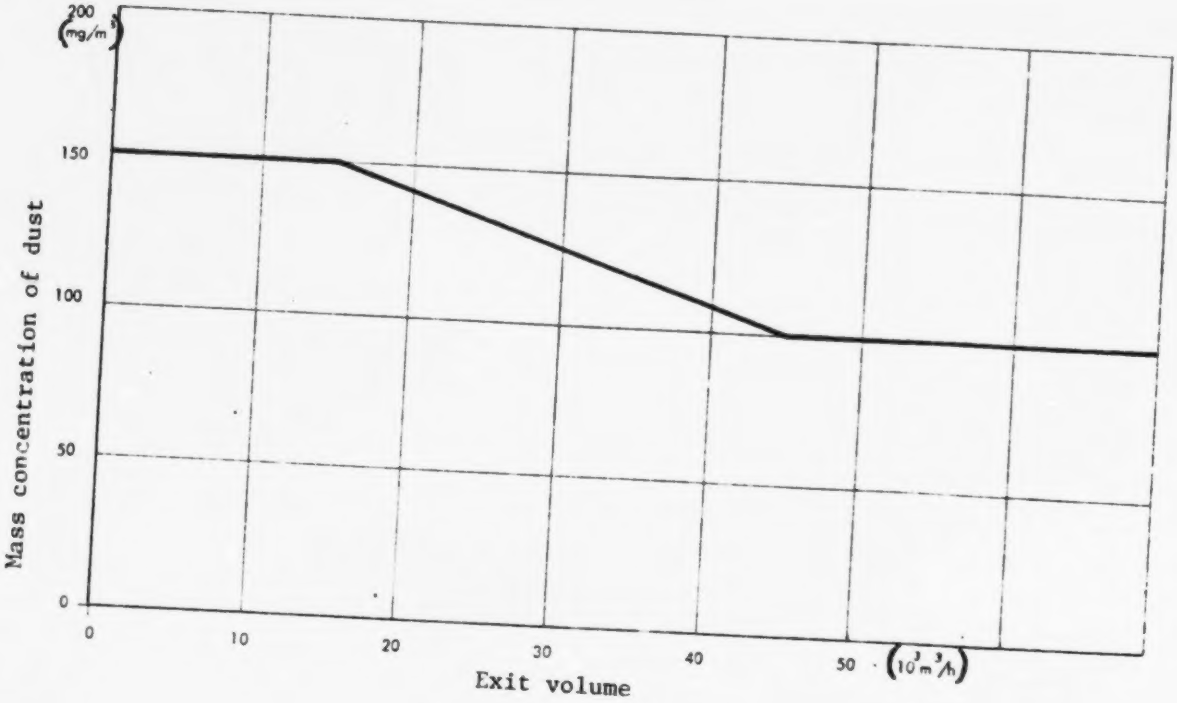
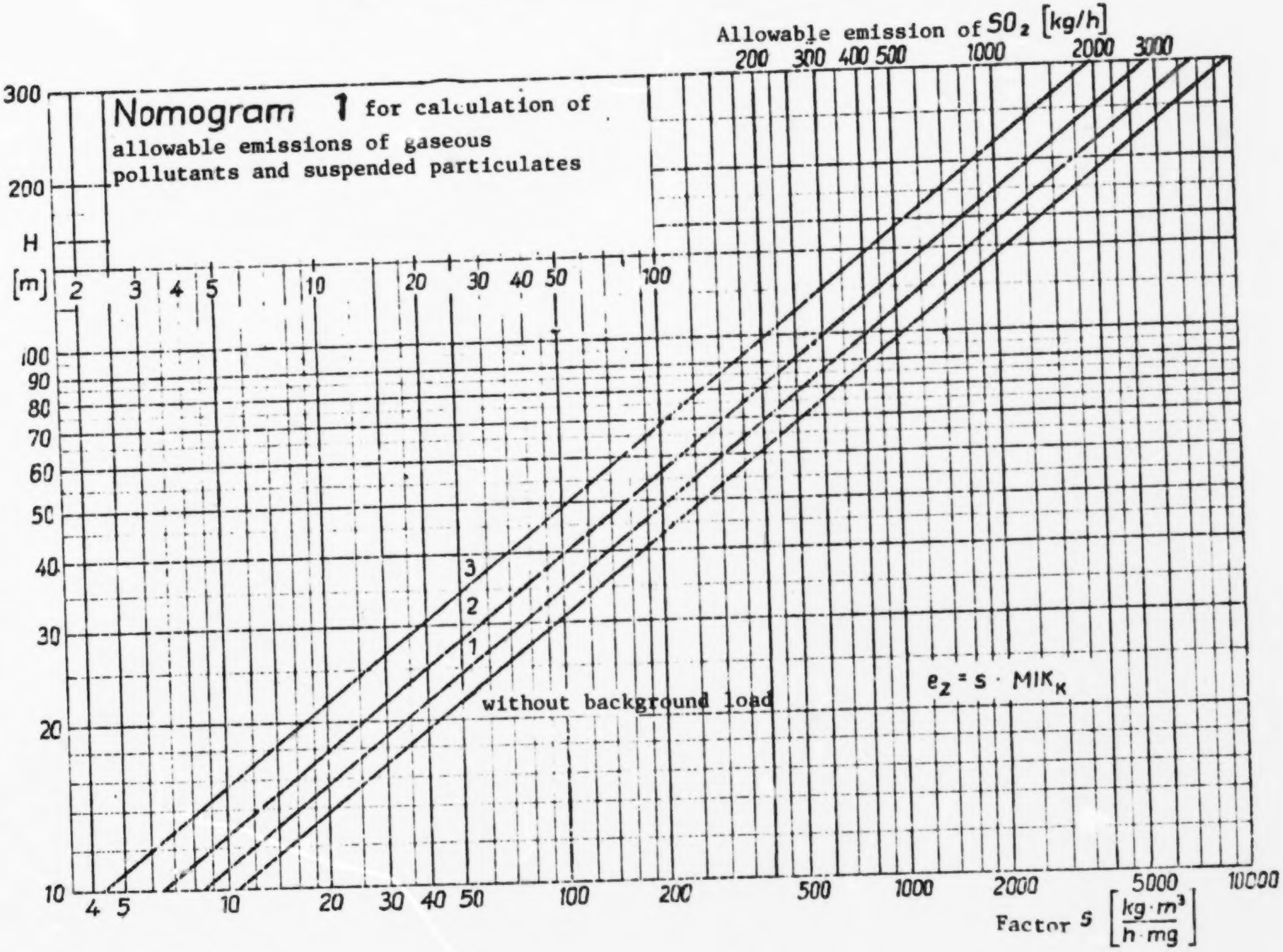


Figure 11-1

Nomogram for Emission Calculations of Gaseous Pollutants and Suspended Particulates Based on Stack Height, Air Quality Load and Factor S*, East Germany



* See Table 11-4

Figure 11-2
Nomogram for Emission Calculations of Settleable Particulate Matter Based on Stack Height, Particulate Matter Franchise and Air Quality Load, East Germany

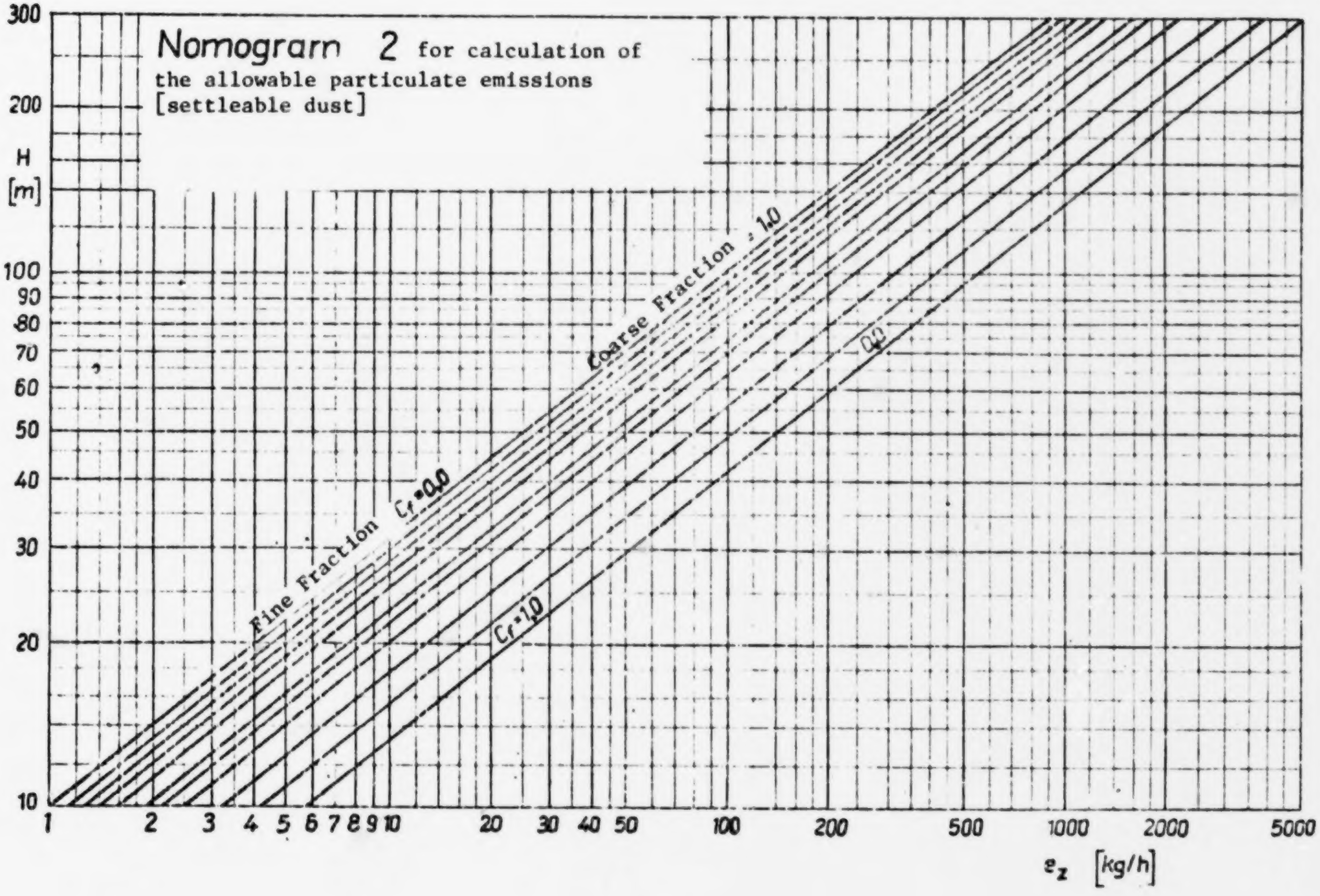
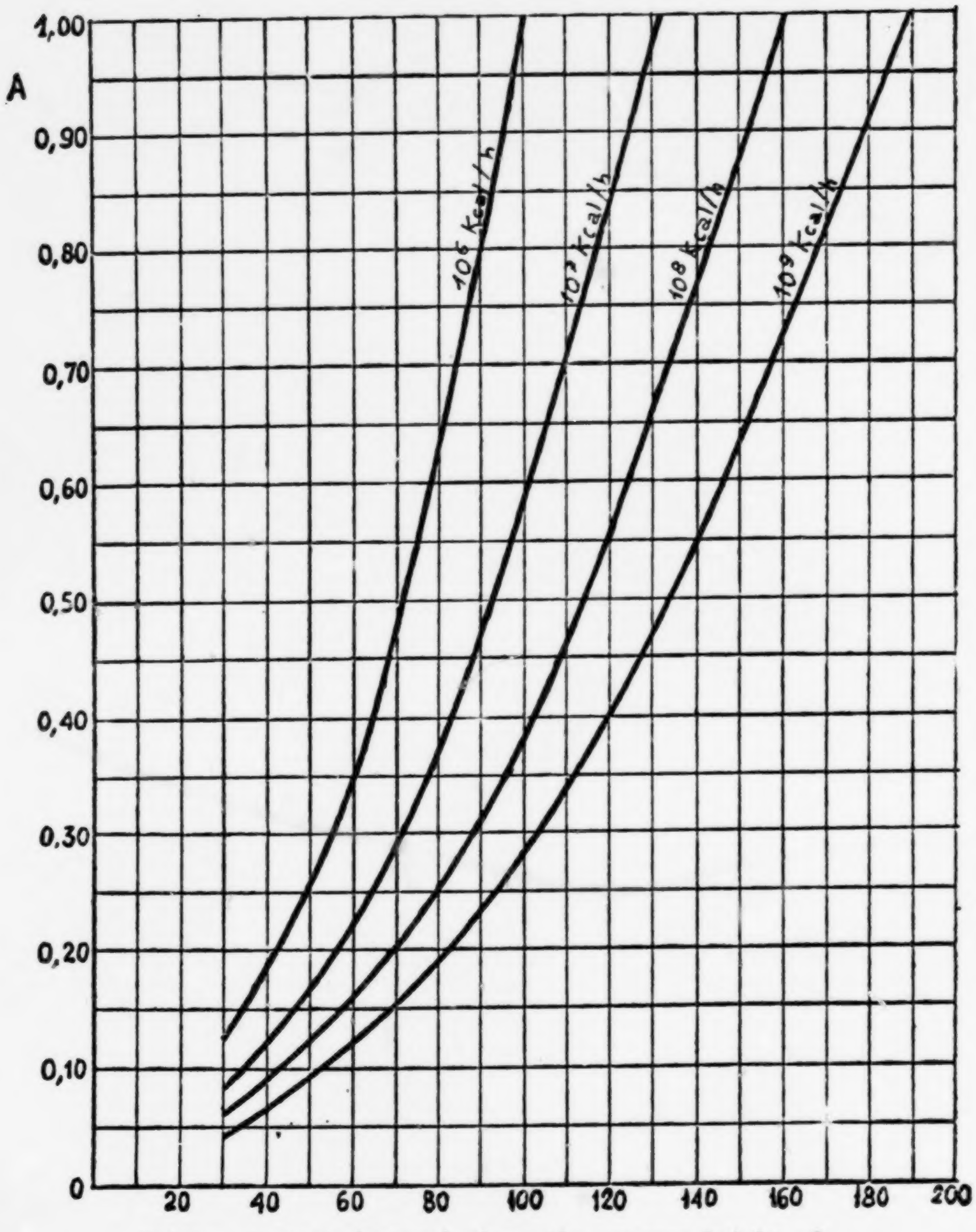


Figure 11-3
Stack Height Requirement Based on
Factor A and Heat Input, Italy



Height of stack (meters) above the average height of surrounding terrain and buildings

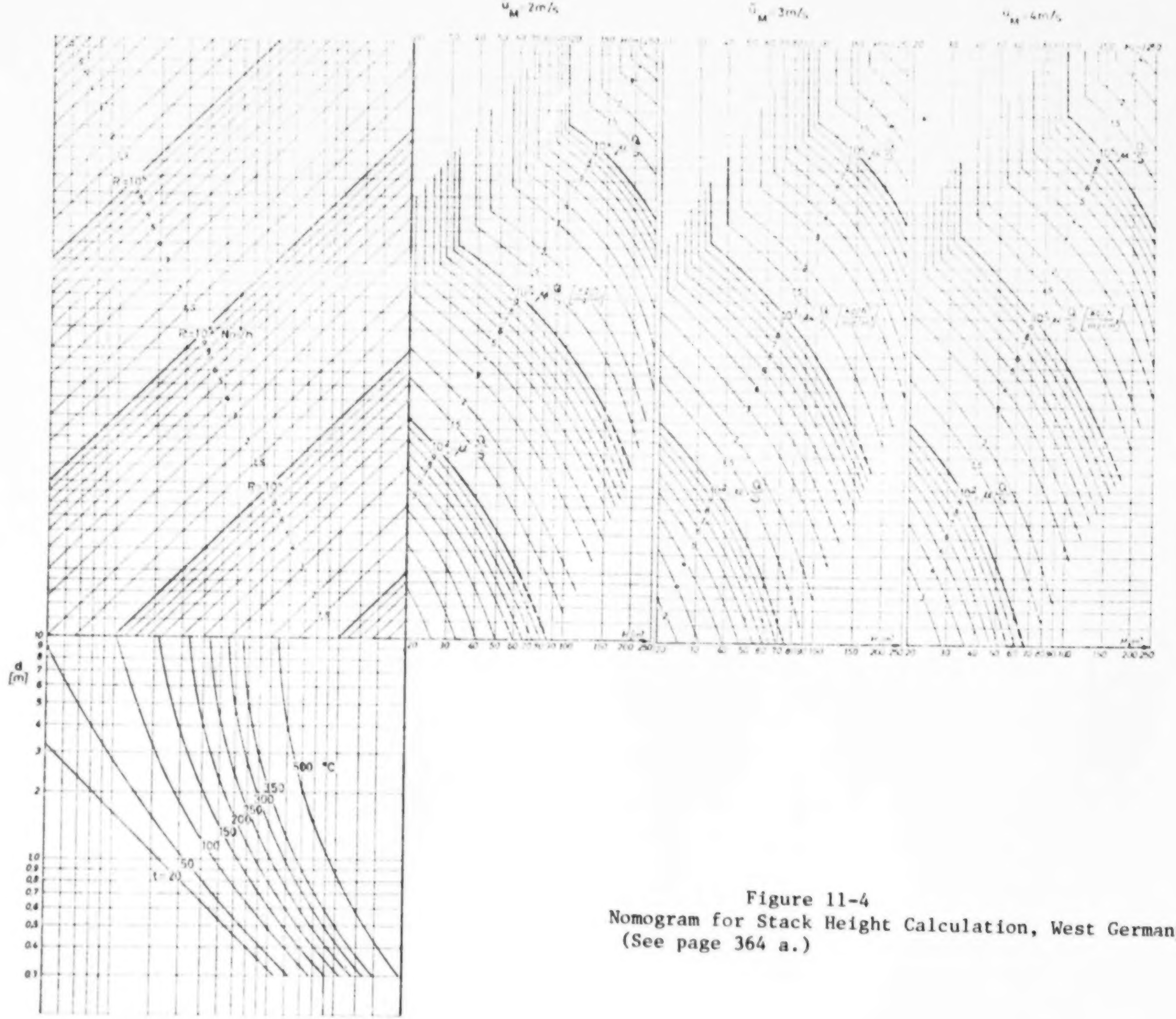


Figure 11-4
Nomogram for Stack Height Calculation, West Germany
(See page 364 a.)

The regulations of the Federal German Republic incorporate the procedure for determining stack height of Kommission Reinhaltung der Luft specification VDI-2289, which utilizes a nomogram.

This nomogram is used as follows:

1. Draw a horizontal line in the lower left diagram at the diameter in meters of the inside exit diameter (*d*) of the stack.

2. From the point of intersection of this line with the curve of appropriate stack exit gas temperature (*t*), in °C, draw a vertical line into the upper left diagram.

3. From the point of intersection of this line with the appropriate diagonal value of total stack effluent gas quantity (*R*), in cubic meters per hour STP, draw a horizontal line through the three remaining diagrams to the right.

4. From each of the three points of intersection of this line with the curves (one in each diagram) of the appropriate value of $(\mu(Q/s))$ draw a vertical line downward to the bottom of the chart. The value of μ is given by the inset table for various values of averaging time (τ). *Q* is kilograms per hour of emission of the specific pollutant for which *s* is the maximum increase in ground level concentration over background concentration, in milligrams per cubic meter, which may be contributed by the stack in question.

5. The three points of intersection are at values of stack height (*H*) above ground for three different conditions of average wind velocity, u_H, in meters per second about 20 meters above ground, namely 2, 3, and 4 m/sec, respectively.

Precautions and limitations on the use of this nomogram are included in the regulation and specification referred to.

TABLE OF τ VS. μ

τ	μ	τ	μ	τ	μ
3 minutes	1.48	20 minutes	1.04	4 hours	0.75
4 minutes	1.38	25 minutes	1.02	5 hours	0.72
5 minutes	1.31	30 minutes	1.00	6 hours	0.70
6 minutes	1.26	45 minutes	0.96	12 hours	0.62
8 minutes	1.19	1 hour	0.93	1 day	0.56
10 minutes	1.14	1.5 hours	0.88	2 days	0.51
12 minutes	1.11	2 hours	0.85	3 days	0.50
15 minutes	1.08	3 hours	0.79	4 days	0.49

Figure 11-4 (continued). Nomogram for Stack Height Calculation, West Germany.

Figure 11-5

Heights of Single Chimneys for Cement Works, Great Britain

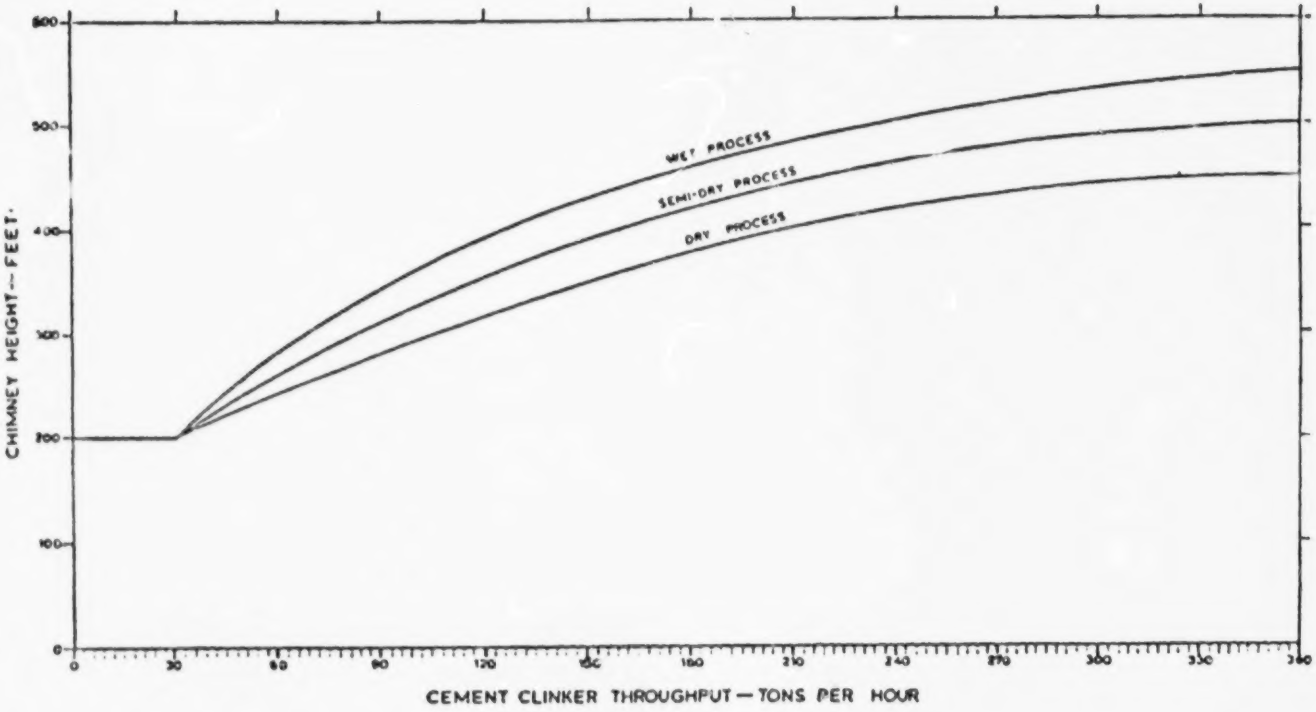


Figure 11-6
Height Requirement for Cement Works
(Multiple Chimneys), Great Britain

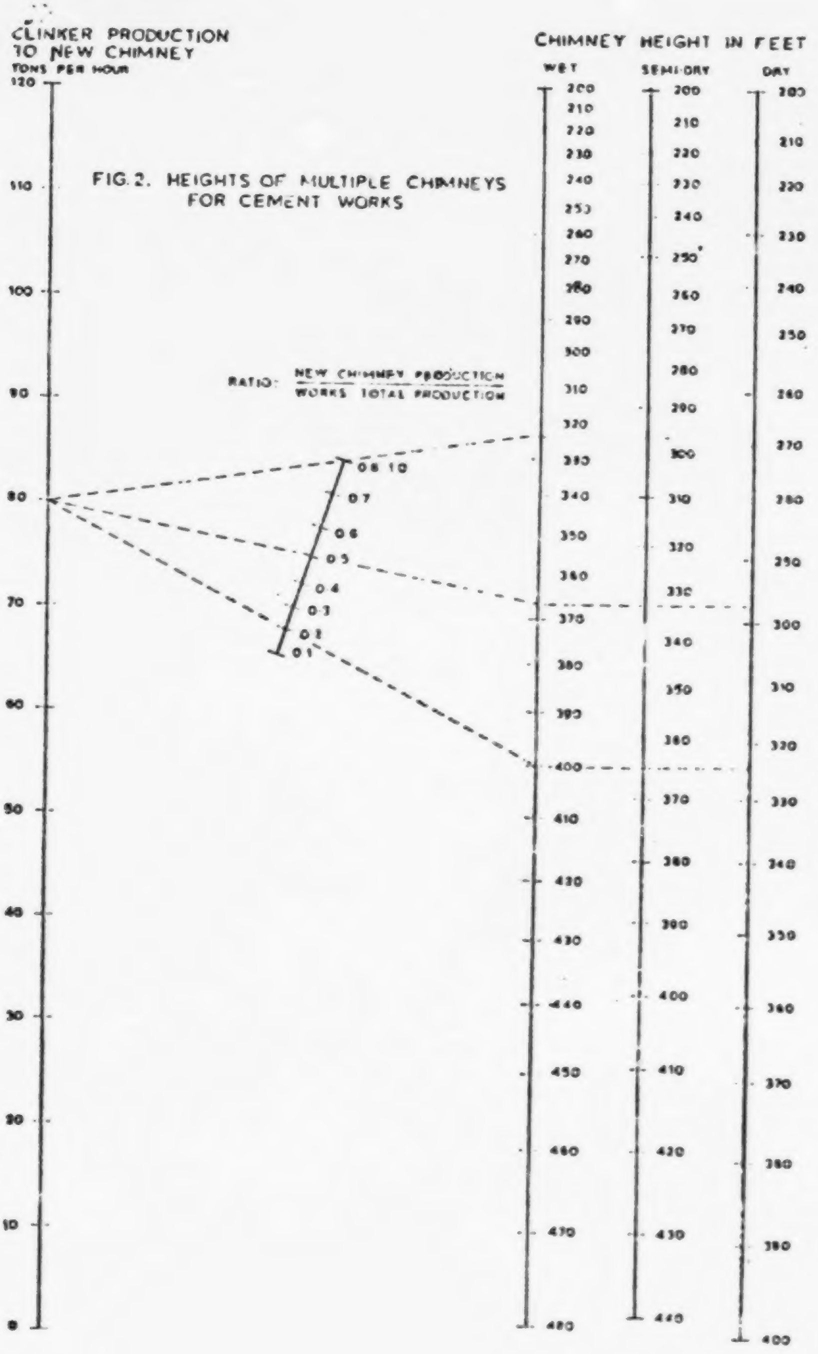


Figure 11-7
Determination of H_{ref} at Conventional
Heavy Oil Fired Plants, Sweden

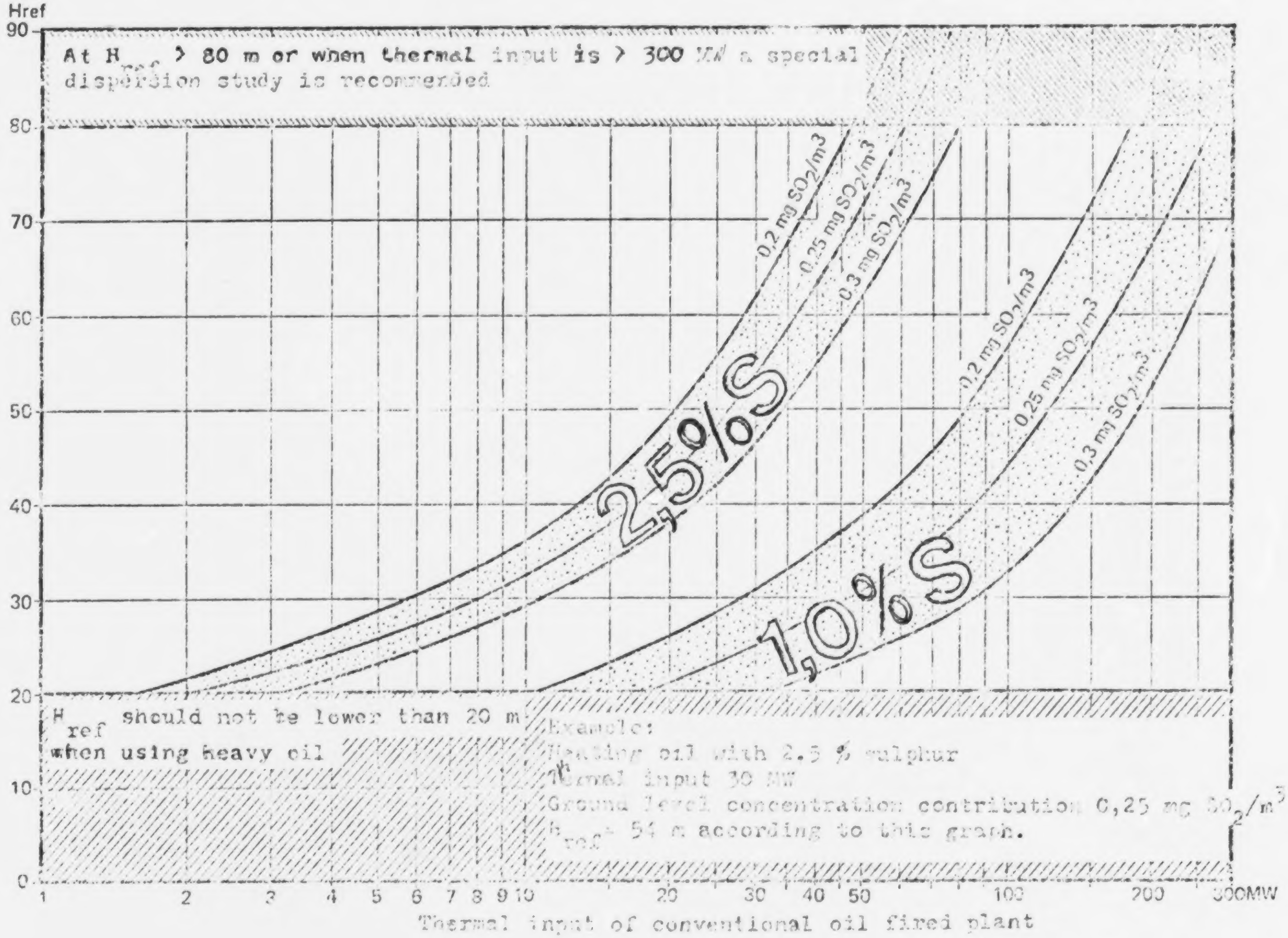
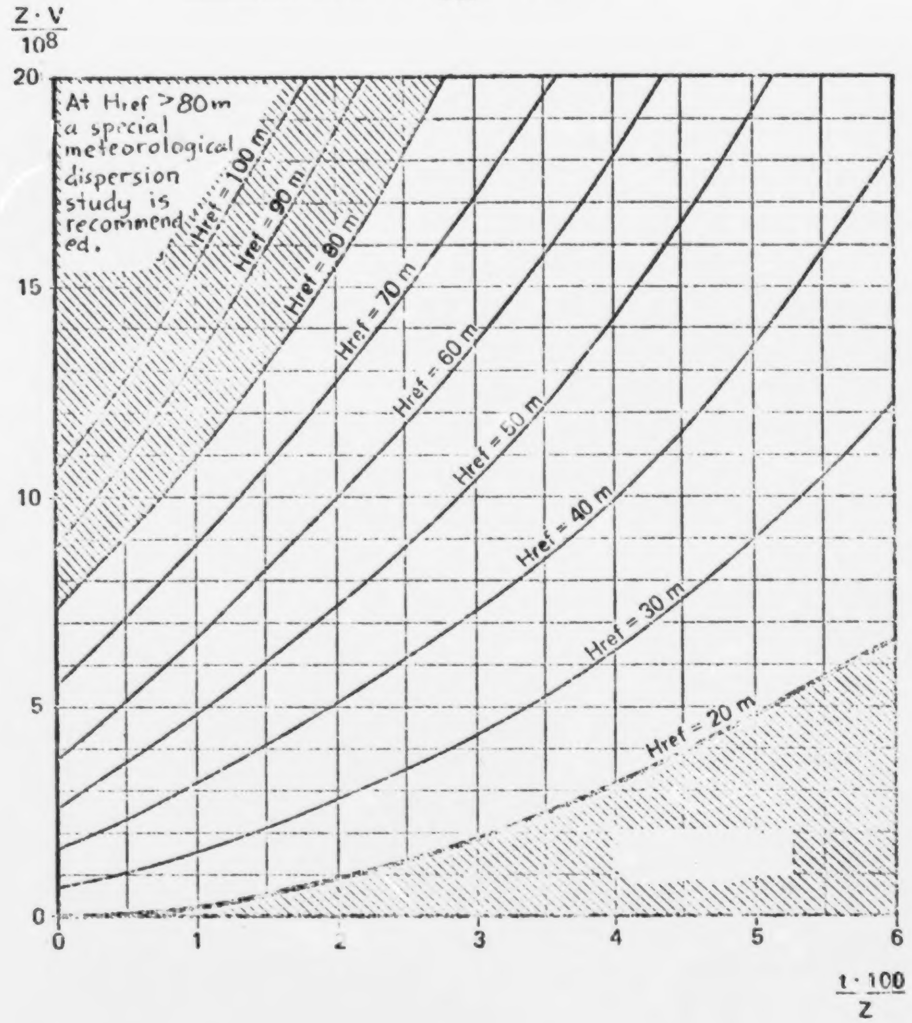


FIGURE 11-8,
DETERMINATION OF H_{ref}, SWEDEN



Legend: Z = dilution factor
V = gas flow in m³ wet normal/h
t = gas temperature °C
Href = reference height of chimney in m

Example: Z = 8 000
V = 125 000 m³ norm fuktig/h
t = 240 °C

$$\frac{Z \cdot V}{10^8} = \frac{8\,000 \cdot 125\,000}{10^8} = 10$$

$$\frac{t \cdot 100}{Z} = \frac{240 \cdot 100}{8\,000} = 3$$

Href = 49 m enligt ovanstående diagram

$$Z = \frac{\text{emission at max. load } (SO_2/\text{hr}) \times 10^6}{V \text{ Ground level Conc. Contribution}}$$

FIGURE 11-8 , CONT.
DETERMINATION OF H_{ref}, SWEDEN

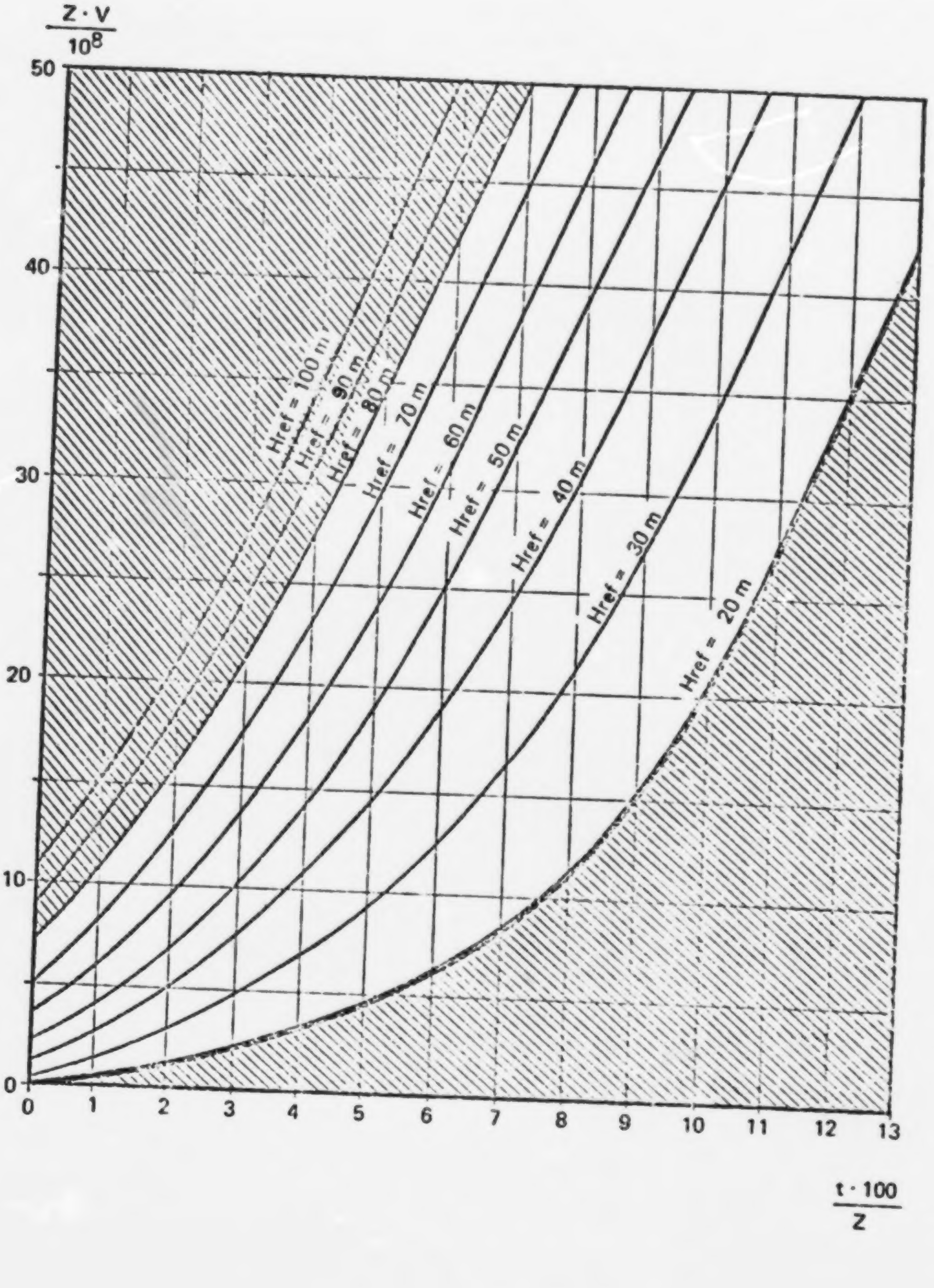


Figure 14-1

Calculation of Sanitary Protective Zone
Measured from an Operating Petroleum Refinery, USSR

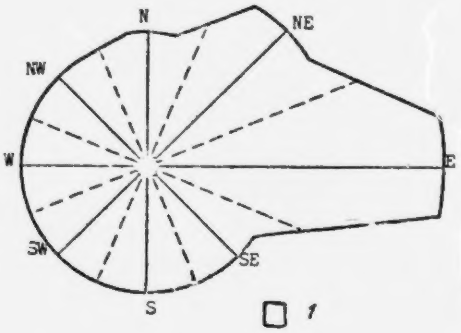
1. Minimum dimension of the sanitary-protective zone (according to "Sanitary Norms for Planning Industrial Enterprises" ℓ_0=1000 m.

2. Distance L_0 up to which sulfur dioxide concentrations exceeding the MPC are observed, 5000 m.

3. The mean annual frequency of wind of different directions (according to the climatic handbook) p and length of sanitary-protective zone l are given in the table:

	N	NE	E	SE	S	SW	W	NW
p %	8	7	5	11	14	19	29	7
l km	5	5	5	5	5,5	7,5	11,5	5
$l = \begin{cases} L_0 \frac{p}{p_0} & \text{for } p > p_0 \\ L_0 & \text{for } p < p_0 \end{cases}$								

4. Below shows the boundaries of the sanitary-protective zone.



Example of calculation of boundaries of sanitary protective zone of petroleum refinery

FIGURE 15-1
TEST CYCLE, EUROPEAN ECONOMIC COMMUNITY

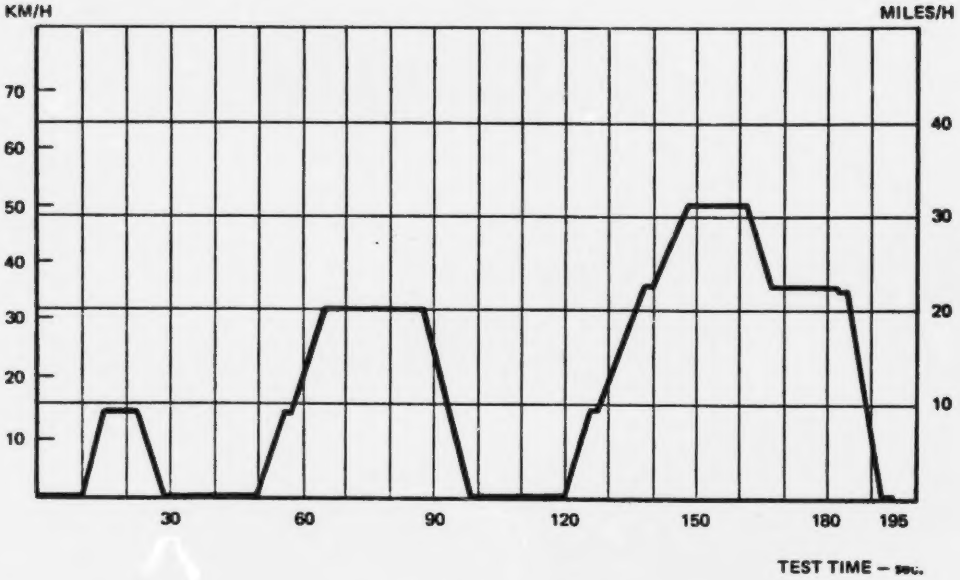


FIGURE 15-2
TEST CYCLE, U.S. FEDERAL

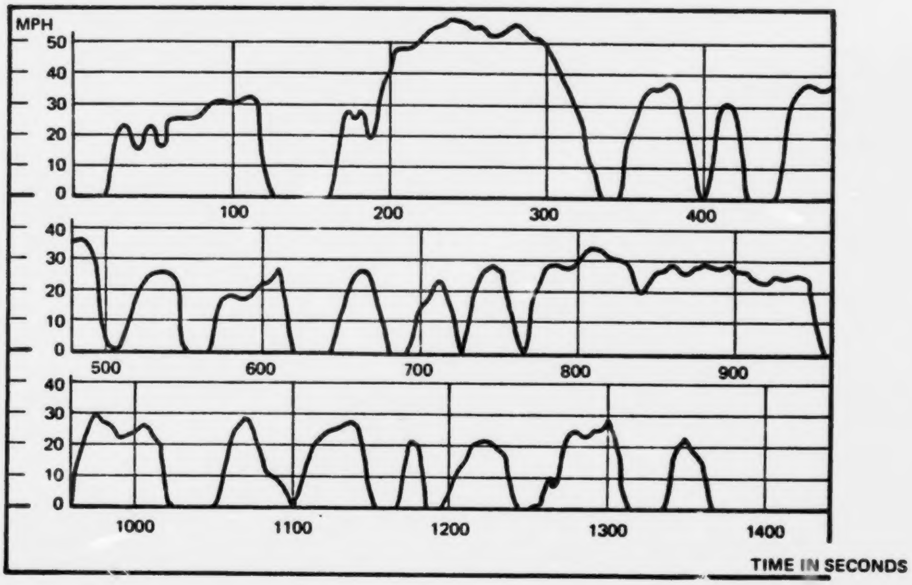


FIGURE 15-3
TEST CYCLE, 10-MODE, JAPAN

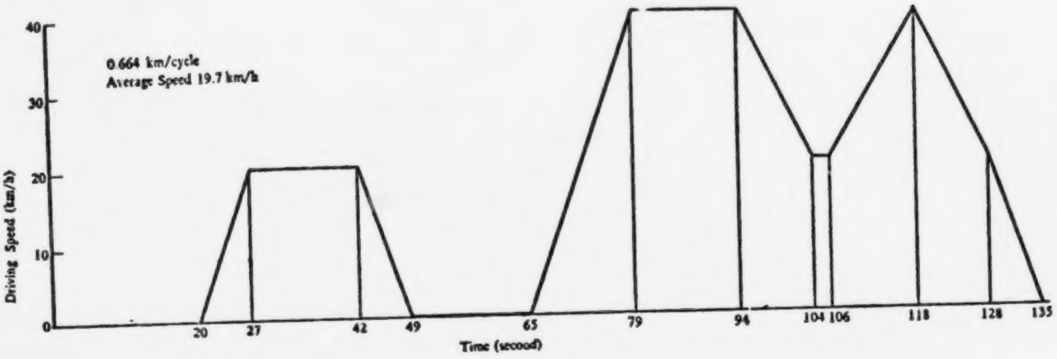


FIGURE 15-4
TEST CYCLE, 11-MODE, JAPAN

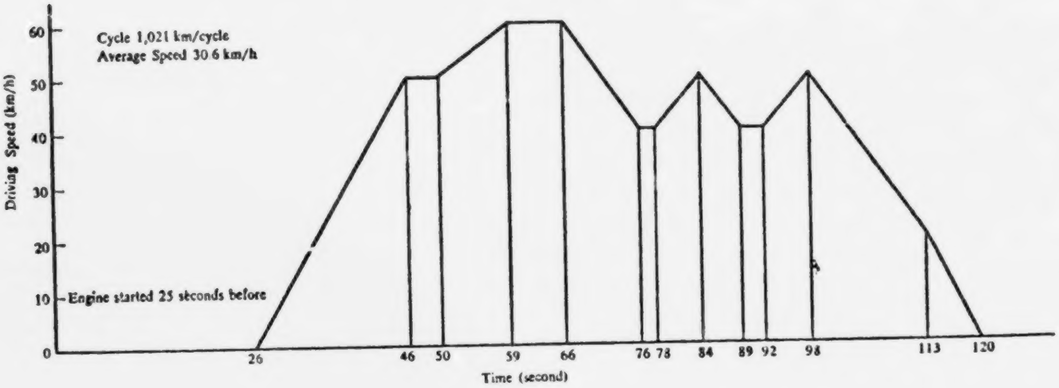
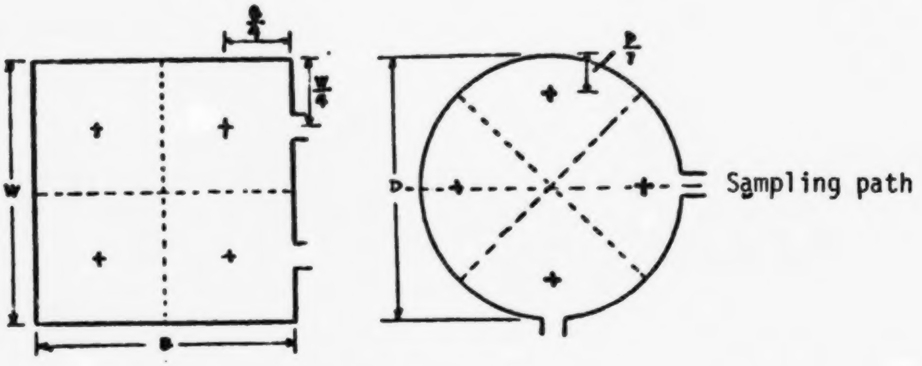


FIGURE 16-1

Cyclone Probe of the British Coal Utilities Research Assoc. (BCURA)



Placement of measuring points and
sampling pathway (4 measuring points)

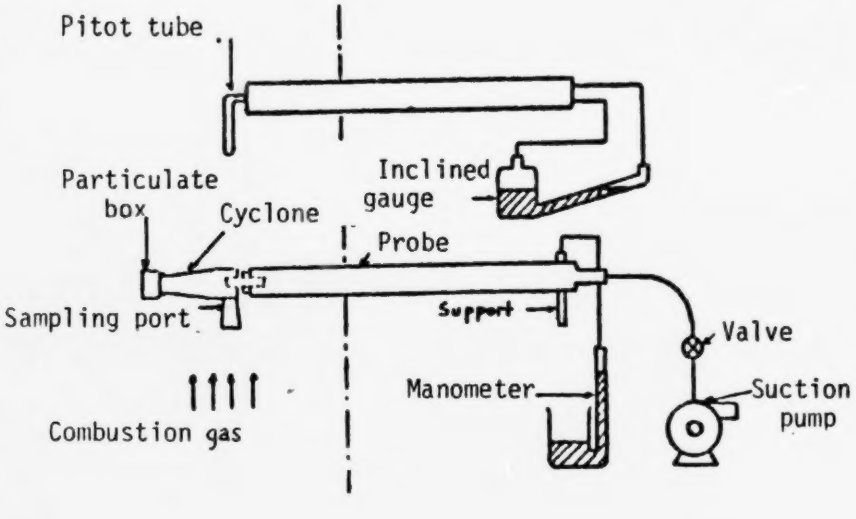
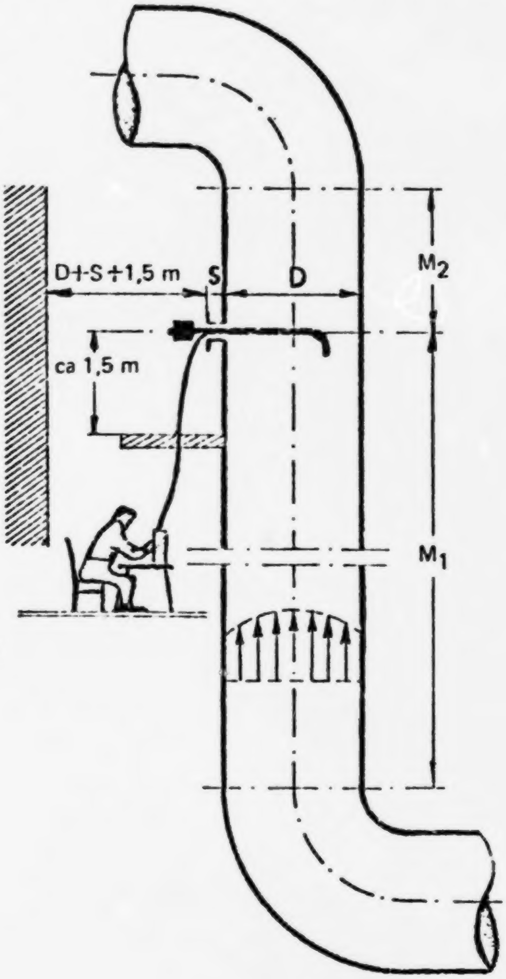


Diagram of the cyclone probe, BCURA

FIGURE 16-2
STACK SAMPLING REQUIREMENTS, SWEDEN

1. Measurement platform approx. 1x1.5m², to be built in case of access difficulties. Stairs or fixed ladder shall lead to the platform.
2. Space should be provided for table, chair and measurement equipment as close to the measurement platform as possible.
3. Measuring points should be equipped with necessary safety devices.
4. The measuring point should be properly lighted and ventilated.
5. Terminals for electricity and water should be available at the measuring point.
6. When measuring outdoors it must be possible to provide rain and wind shelters.
7. The required number of holes in the measuring plane is evident from section 3.3.



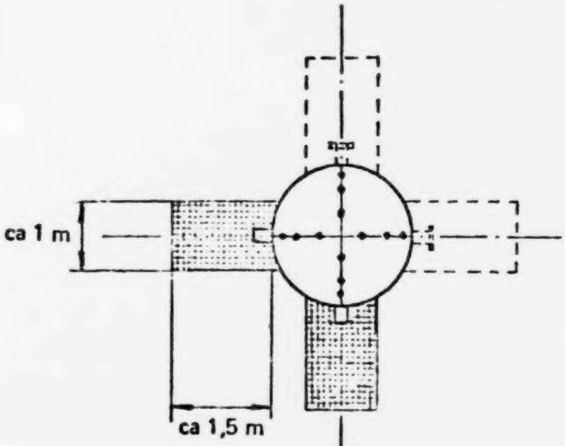
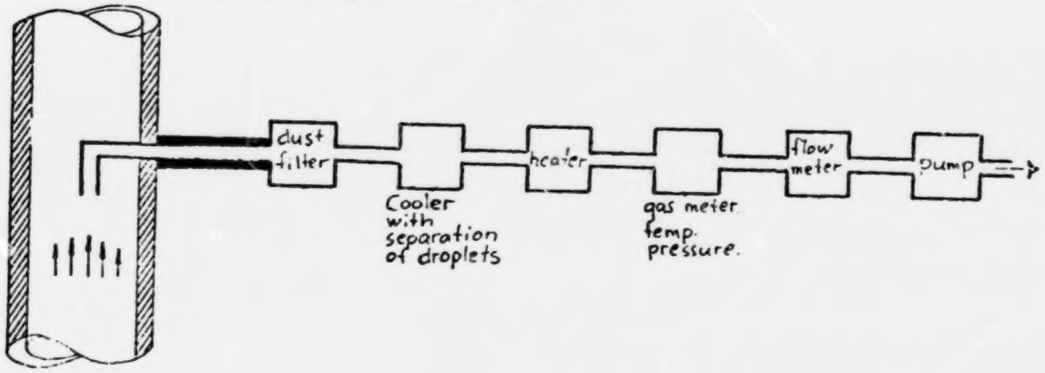
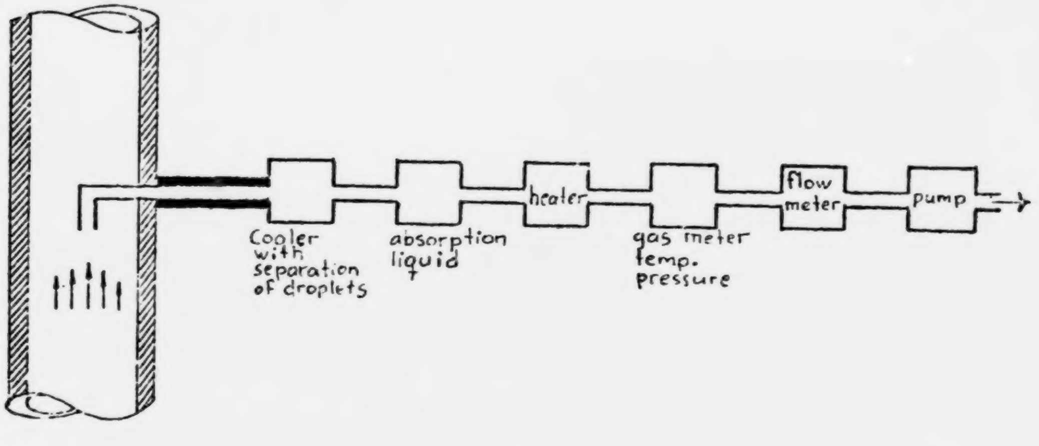


FIGURE 16-3
STACK SAMPLING LINE, SWEDEN

a) Manual particulate measurement



b)Manual gas measurement



SECTION VI

APPENDIX C: List of Information Sources

C. List of Information Sources

Argentina

Disposiciones Regales para Todas las Fuentes Capaces de Producir Contaminacion Atmorferica en Jurisdiccion Federal y en Provincias que Adhieran a las Mismas, Ley No. 20.284 Boletin del dia del ministerio de bienestas social, May 9,1973

Australia

Australian Design Rule No. 26 for Vehicle Engine Emission Control, effective after January 1, 1972, Department of Transportation, Melbourne, 1971

Australian Design Rule No. 27 for Vehicle Engine Emission Control, effective after January 1, 1974, Department of Transportation, Melbourne, 1971

National Emission Standards for Air Pollutants, National Health and Medical Research Council, Nov. 1972

New South Wales

Clean Air Act 1961, last amendments, June 1972

Queensland

Clean Air Act Regulation 1972; Brisbane March 1972

South Australia

Regulation under Health Act, 1935-1968: At the Executive Council Office, at Adelaide, November 1969

Victoria

Clean Air Act Regualtions 1965: Executive Council Chamber, Melbourne, May 1965

Western Australia

Clean Air Act Regulations 1964; Commissioner Public Health Department, Perth, April 1967

Belgium

Arrêté royal du 26 juillet 1971 relatif à la creation de zones de protection speciale contre la pollution atmosphérique, modifié pas l'arrêté royal du 3 juillet, 1972

Arrêté royal du 19 juillet 1971 relatif a l'aquéation par type des véhicules automobiles equipes de moteurs à allumage commandé en ce qui concerne les emissions de gas pollants par le moteur

Troisième projet d'arrêté royale modifiant l'arrêté du 26 juillet 1971 relatif a la création de zones de protection speciale contre la pollution atmosphérique

Brazil

Resolucao No. 425-70, de 17 de marco de 1970. Adota a Escale Ringelmann

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Decreto No. 779 de 30 de janeiro de 1967. Regulamento do Contiôle da Poluicao Atmosferica

Decreto "E" No. 4.813, de 1 de janeiro de 1971. Aprova o Regulamento do Lipeza Urbana, complemnto do Decreto "E" No. 3.8000, de 20 de abril de 1970

Lei No. 1.574 de 11 de decembro de 1967

Estado de Sao Paulo

Decreto No. 32.231, de 13 de maio de 1958. Regulamenta a lei No. 3.798, de 5 de fevereiro de 1957

Decreto Estadual No. 2.918 de 7 de abril 1918; Capitula VII Das Fabricas e oficinaos en geral sua Fiscalizacao

Bulgaria

Decree No. 257 of 1966, State Inspectorate, International Digest of Health Legislation

Canada

National Air Quality Objectives Proposed Environment Canada, Oct. 1971

Clean Air Act, 1971

Motor Vehicle Safety Act, 1969-70

Alberta

Clean Air Regulations 10/1973, Alberta Environment

British Columbia

Pollution Control Objectives for the Forest Products Industry of British Columbia, Dept. of Lands, Forest, and Water Resources, Victoria, British Columbia, 1971

Manitoba

Manitoba Regulation 18/60, Schedule "A" Ambient Air Criteria, Schedule "C", Atmospheric Emission Criteria, March 1972

New Brunswick

Air Quality Regulations, April 1973, New Brunswick Department of Fisheries and Environment, Fredericton

New Foundland

Proposed Regulation for the Control and Prevention of Air Pollution to be made under the Department of Provincial Affairs and Environment Act, 1973

Ontario

Regulations 12-14, Motor Vehicle Emissions, 1970

Regulations 15, Air Pollution, 1970

List of Information Sources

Prince Edward Island

Environmental Control Act, Chapter 33, April, 1971

Quebec

Montreal Urban Community, By-law 9, Council of the Montreal Urban Community, March 1970

Saskatchewan

Regulations 323/69 under Air Pollution Control Act, 1969

Czechoslovakia

Symon, K., Establishment of National Ambient Air Quality Standards in Czechoslovakia, Interregional Symposium on the Use of Air Quality Criteria in National Air Pollution Control Programs, Geneva, 1973

Sammlung der Gesetzgebungen der Tschechoslovakischen Sozialistischen Republik (Collection of Laws of the Czechoslovakian Socialistic Republic), National Assembly, April 1967

Working Instructions for the Determination of Pollutants in the Free Atmosphere, (Unified Analytical Methods), Ministry of Health, Hygienic Regulations, Vol. 31, 1969

Denmark

Law no. 135 of 26 april 1972, Law to Limit sulfur content in fuel oil

Environmental Protection in Denmark, What happens in 1973, English Version, The Ministry of Environmental Protection, Jan. 1973

Luftlorunrening, Movedluftudvalgets ne de gorelse for luft forunening oq Foruneningr radet, Publikation Nr. 8, June 1971

East Germany

Fuenfte Durchfuehrungsverordnung zum Landes Kulturgesetz, Reinhaltung der Luft, Januar, 1973, Gesetzblatt, Berlin, April 24, 1973

Finland

Circular letter No. 1550/1973, Air Quality Standards, National Board of Health, Helsinki

France

La legislation Francaise relative à la Prevention de la Pollution Atmospherique par les Sources Fixes, CITEPA, Etudes Documentaires, No. 41 (CI779), 1974

Instructions pour la Construction de Cheminées des Installations de Combustion, Circulaire aux Prêfets du 24 Novembre, 1970

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Great Britain
Clean Air Acts, 1956 and 1968
Alkali etc. Works Regulation Act, 1906
Clean Air Regulation (Emissions of Grit and Dust From Furnaces), 1971

Greece
Revised Standards of Chapter 51 by A. C. Stern in "Air Pollution Vol. III", Second Edition, Ed. A.C. Stern, Academic Press, 1968

Hong Kong
Clean Air, Chapter 311 of Revised Edition, 1964

Hungary
Annex of the Act of the Defense of Clean Air of Public State Government, Hungarian People Republic, 1973

India
Air Pollution Control Act, 1971
National Committee on Air Pollution Control, Report, Submitted to the Ministry of Health and Family Planning, Feb. 1972

Iraq
Requirements to be met in Respect of Brick Kilns, Baghdad Directorate of Health, Sanitary Engineering Unit, 1968

Ireland
Control of Atmospheric Pollution Regulation, Dublin, 1970
Alkali and Worker Regulation Act, 1906

Israel
A Summary of Israeli Air Pollution Legislation, Standard, Criteria and Guides, as of November 1973, A. Donagi, Research Institute for Environmental Health Nuisance, Tel Aviv University, Dec. 1973

Italy
Regloamento per l'esecuzione della legge 13 luglio 1966, n. 615, recante provvedimenti, limitatamente al settore degli impianti termici Gazzetta Ufficiale della Repubblica Italiana, Roma 9, gennaio, 1968

Japan
Basic Law for Environmental Pollution Control, Air Pollution Control Laws, No. 132, August 3, 1967, IERE Council, Japan, 1970
Air Pollution Control Law, Air Quality Bureau, Tokyo, 1972
Enforcement Ordinances of Air Pollution, Control Law, Air Quality Bureau, Tokyo, 1972

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Notification No. 25 of Environmental Agency, May 8, 1973
Notification No. 35 of Environmental Agency, partly revised, May 16, 1973
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